THE Combat Position

Achieving Firefighter Readiness

CHRISTOPHER BRENNAN

Fire Engineering®

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PennWell®

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This book is dedicated to my son Liam Donovan Brennan. It is every father's dream to have an amazing son; my dream has been realized. This book is written as much for you as for my brothers and sisters in the fire service.

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Writing is an artistic pursuit as much as it is an educational one. This book is as much about the art of firefighting as it is about the science of firefighting. I believe that each person who reads this book will find some piece of information that sparks a thought and ideally will encourage the reader to view the fire service in a previously unconsidered light. While it is my hope that you will read the book cover to cover, you need not. The introduction, chapter 1, and chapter 6 form the core of my way of approaching our trade, codifying the "artistic" approach to firefighting. Chapters 2, 3, and 4 present a significant amount of information about the science of firefighting and capture some critical research that can help reduce our line of duty deaths (LODDs) and fireground injuries. In chapter 5, I present a model for fireground tactical decision making. I hope that, taken together, these chapters have successfully captured critical ideas that will improve your chances of going home to your family and friends when you leave the firehouse.

The following people deserve praise for helping me to find my way; however, the thoughts and conclusions represented here are mine and mine alone. My views do not represent the views of any department, agency, or company I have worked for. Any error or omission is mine alone.

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Lieutenant Joe Moore, Orland Fire Protection District

Firefighter Jeff Kraft, Chicago Fire Department

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Chief Craig Haigh, Hanover Park Fire Department

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There are literally hundreds of men and woman I have worked with in the last 14 years who have helped me crystallize my thoughts and ideas. I wish there was room to list everyone. Thank you all.

Introduction: A Combat Position

If Prometheus was worthy of the wrath of heaven for kindling the first fire upon earth, how ought all the Gods to honour the men who make it their professional business to put it out?

—John Godfrey Saxe (ca. 1890)

Firefighting is combat. It is not a battle against another person, but it is combat nonetheless. Firefighters place themselves in a position in which they must risk their lives to protect the community. That calling, that selfless willingness to place one's neighbors ahead of oneself, is rooted in the same noble drive as the warriors who defend our nation on foreign shores. The risk is the same: It is the risking of all that you and your family hold dear, your life and health, to protect others who cannot protect themselves. At times in our history the relative degree of risk has varied; during times of war, members of our armed forces—Army, Navy, Air Force, and Marines—have borne a greater share of the risk, but in times of relative tranquility, our public servants are the ones who have shouldered the burden of securing our homeland.

There are those who may not have considered fire departments as being engaged in combat; there are bound to be individuals who would philosophically disagree with the very implication that firefighting is combat. Yes, the fire service has assumed many roles beyond fighting fires. Most fire departments around the country provide emergency medical services, hazardous materials response, technical rescue, and other services to aid their community, their neighbors whom they have sworn to protect. It is a reality that those same neighbors see us first and foremost as rescuers to crawl down a dark, hot, dangerous hallway that is being ravaged by the effects of unrestrained fire to save their loved ones, protect their property, and salvage their possessions (fig. i–1).

I am not the first person to recognize these similarities by any means. Two well-known retired chiefs, J. P. "Mac" McCastland, Associate Director, Illinois Fire Service Institute, and Deputy District Chief (ret.) Edmund J. Enright, Chicago Fire Department, have lectured for years about this commonality. They are military veterans who served during the Vietnam War and became respected fire chiefs. They made their case to a national audience at the 2010 Fire Department Instructors Conference in their eight-hour presentation, "Duty, Pride, and Tradition." Bob Hoff and Rick Kolomay, both highly recognized fire service leaders, in their book, *Firefighter Rescue & Survival*, open chapter 2 with the heading "Combat Ready." They acknowledge that we must see ourselves engaged in battle if we are to be prepared on the fireground. Finally, my friend and colleague Lt. Col. Dave Grossman, author of numerous books on people in combat, wrote in an e-mail exchange in which I was discussing this idea with him and shared some initial drafts on what I have called the *fire service warrior concept*, "I like 'fire service warrior' a lot! I'd use that term up front, and say that 'fire service warriors are modern knights, paladins, who bear the shield and go toward the danger to rescue citizens in their hour of need.'" All of these men have had an impact on my desire to research and develop this concept. While I have not sat down to develop this in conjunction with them, they have all made their mark on me, and it shows in this book.

Fig. i–1. Regardless of the number of tasks the fire department is assigned, the one mission we must fulfill is protecting our neighbors from the effects of unrestrained fire.

The United States has become quite familiar with the words *homeland security* in the years since September 11, 2001. We must not forget, though, that America's firefighters have been on the bloodied edge of the sword that has served to provide safety and security to our communities since Benjamin Franklin founded the Union Fire Company in Philadelphia on December 7, 1736.[1] Of course, it is not just our firefighters who have placed their lives on the line to protect the community; we must acknowledge our cousins in the law enforcement community for their efforts as well. Their sacrifices are often overlooked, and their job misunderstood by many. They are the complementary edge to the sword that protects us.

If we look at both the statistics and the environment that firefighters may find themselves in, I believe that the analogy of firefighting to combat is not only appropriate but also essential if the fire service and the public we serve are to understand the role we play in our communities. In 2005, when I started seriously doing research and started writing about this idea, there were 115 LODDs reported to the US Fire Administration (USFA).[2] Additionally, the National Fire Protection Association (NFPA) has estimated that 80,100 firefighters were injured in the line of duty in 2005, and nearly 50% of those injuries occurred on the fireground.[3] From 2006 to 2009 there were 436 firefighter fatalities,[4] and from 2006 to 2008 (the last year annual firefighter injury data were published as of this writing) there were 161,095 fireground injuries.[5]

For the purposes of comparison from October 2001 to August of 2008, there were 2,409 fatalities in Operations Iraqi Freedom (the Iraq War) and Enduring Freedom (the War in Afghanistan) and 30,568 injuries.[6] In approximately seven years of active combat operations, the US Military reported fewer personnel wounded in action than the US Fire Service did in any single year during the same period!

This should not come as a shock, but firefighting is a dangerous profession. We take men and women of widely varied ages and levels of health, fitness, training, and experience, and send them into a building were most of the time they cannot see or breathe the air. They have to operate in an environment that is filled with toxic gases, and the temperatures they have to work in would cause grievous injury or death if they did not have their protective equipment. We encapsulate them in a coat, pants, boots, gloves, hood, helmet, and self-contained breathing apparatus (SCBA) that hinders dexterity, mobility, verbal communication, and the ability to maintain an awareness of the environment. Oh, and as an added element, that most pervasive of physical forces, gravity, is constantly exerting its pull on the structure that our warriors are doing battle in. If the building has been sufficiently weakened by the effects of the fire, it is likely to collapse on the firefighters. That seems to me to be a reasonable description of combat (fig. i–2).

Fig. i–2. Firefighting is combat.

In the classic text *The Art of War*, Sun Tzu, a warrior philosopher who lived more than 2,000 years ago in China, tells us, “Therefore those who do not know the plans of competitors cannot prepare alliances. Those who do not know the lay of the land cannot maneuver their forces.”[7] In the fire service we recognize the importance of mastering our knowledge of fire behavior (how our enemy will behave); building construction (how the terrain on which we do battle conspires with our enemy to defeat us); our personal protective equipment, because if we do not know the limits of our "armor," then we do not know our limits; our tools, because we must know what weapons to bring and how to use them if we hope to be victorious; and our brothers and sisters, because we are a team, each of us has our strengths and our weaknesses, and we must balance those strengths and weaknesses to achieve success.

Is it possible to guarantee that all of our people will go home? No. Firefighting is an inherently dangerous job; we risk our lives to protect the lives and property of the community we serve. There will be times when we need to take risks, perhaps even risks that the uninitiated would consider foolhardy, because there may be a life on the line.

Every firefighter must take seriously the need to understand the threats faced every day in the line of duty and how to respond physiologically and psychologically. We must build a foundation of physical and mental readiness. We must master the fundamentals of our trade and be able to make good decisions quickly in the face of adversity. The 20-year veteran and the new candidate must both strive to know all there is to know about our profession, and this requires study and practice. With the exception of some areas that would be described in the media as "of a lower socioeconomic stature," our personnel are not in battle with fire on a daily basis. It is vital for firefighters sent into combat to have the capacity to study and learn from the experiences of others, think critically and analyze information they are presented with, and understand how their body and mind help and hinder them in their quest to return safely to their loved ones at the end of each tour of duty.

Today's firefighters must be fire service warriors who will unflinchingly put their lives in harm's way to accomplish a mission. Firefighting is combat. Those who embark on this path must understand this fact, just as those who enter the military must know that they may be called upon to risk their lives to protect their nation. It is a calling that not everyone is suited for, and that is okay. There are plenty of ways to serve your community: Volunteer at your church, be a scout leader, join the Rotary Club, work on a Habitat for Humanity project, or do whatever you are best suited for. If you choose to become a firefighter, you should choose to live the life of a fire service warrior.

The fire service warrior must be prepared to die, suffer grievous injuries, and experience the worst life has to offer. Warriors must strive to live and train to do everything possible to survive whatever circumstances arise, but at the end of the day, they must be able to look themselves in the eye and know that they will place their life on the line for what they have been called upon to do. Firefighters who are unwilling to risk their lives are of no more use to society than police officers who are unwilling to use their weapons to safeguard the citizens of the community they are sworn to protect.

The idea of viewing our trade of fighting fire as a warrior's calling is one that not everyone will accept at first glance. I hope to make my case over the course of the next six chapters for why it should be. By embracing the philosophy of the fire service warrior, and striving for the ready position, that synthesis of physical and mental readiness that allows for optimum fireground performance, we can reduce firefighter injuries and fatalities.

This is a book about combat, and it is meant to be read by those men and women who choose to go into battle and risk their lives for a cause they believe in; it is meant to benefit those whose lives are lived with purpose and value. It is meant to be a guide for those who seek to follow a warrior's path, the path of the fire service warrior.

This book is not meant to fluff the egos of those people who look at the fire service as *merely* a social club; a job with a paycheck and insurance; a way of getting the adoration of their friends, family and neighbors; or anyone else who has neither the courage nor the ability to engage in combat and risk their lives for their fellow men and women. You know who you are.

Notes

1 "The Electric Ben Franklin," ushistory.org website, accessed September 22, 2010. http://www.ushistory.org/franklin/philadelphia/fire.htm.

2 *Fire Fighter Fatalities in the United States in 2005*, U.S. Department of Homeland Security, US Fire Administration, August 2006.

3 Michael J. Karter, Jr., and Joseph L. Molis, U.S. Fire Fighter Injuries—2005, Fire Analysis and Research Division, National Fire Protection Association, November 2006.

4 "Firefighter Casualties 1999–2008," U.S. Fire Administration, FEMA website, accessed September 22, 2010, http://www.usfa.dhs.gov/fireservice/fatalities/statistics/casualties.shtm.

5 "The U.S. Fire Service: Firefighter Activities, Injuries, and Deaths," NFPA website, accessed September 22, 2010, http://www.nfpa.org/itemDetail.asp?categoryID=955&itemID=23605&URL=Research/Fire%20statistics/The%20U.S.%20fire%20service.

6 "CRS Report for Congress: United States Military Casualty Statistics: Operation Iraqi Freedom and Operation Enduring Freedom," updated September 9, 2008, accessed September 22, 2010, http://honorthenames.com/Military_Deaths/CasRepOEF09092008RS22452%20.pdf.

7 Sun Tzu, *The Art of War*, trans. Thomas Cleary (Shambhala Publishing, 1991).

1

The Mission, Virtues, and Values of a Fire Service Warrior

Firemen are going to be killed right along. They know it, every man of them . . . firefighting is a hazardous occupation; it is dangerous on the face of it, tackling a burning building. The risks are plain . . . Consequently, when a man becomes a fireman, his act of bravery has already been accomplished.

— Chief Edward F. Croker, New York City Fire Department, 1908

If you have picked up this book, I am going to assume that you are a firefighter or a leader of firefighters. What is your mission? Do not read ahead until you can answer that question.

Have you come up with an answer? Okay, now what is your department's mission statement? Are your two answers the same?

Examining what it takes to be in the *ready position*—that is, to embrace fully the idea of being a *fire service warrior*—must start by discussing our mission. If you do not understand your mission, it is nearly impossible to understand what you will be asked to do and how best to prepare. Being prepared to handle the physical and mental challenges that come with our mission is what this book is all about.

Put simply, the mission of the fire service is to "save lives and protect property." This is true no matter what specific services your department offers.

> Do you respond to fires?
>
> Do you respond to emergency medical incidents?
>
> Do you provide vehicle extrication?
>
> Do you participate in fire prevention and education?
>
> Do you respond to hazardous materials or technical rescue incidents?

If you can answer yes to any of those questions, then you are responsible for saving lives and protecting property. I like simple mission statements. If every member of your department cannot recite your mission statement, how likely are they to be embracing it on a daily basis? One of my favorite fire department mission statements is that of the Phoenix Fire Department: "Prevent harm, survive, be nice." That is a clear example of an organization's mission.

Many agencies have new members begin their service by swearing an oath of office, a statement of expectations and obligations. Oaths of office come in many forms and are often tailored to suit the particular department or governmental body. A sample of a fire service oath of office follows:

> *I [state your name] do hereby declare that I will support the Constitution of the United States, the Constitution of the State of ________, and that I will faithfully discharge my duties, to the best*

> *of my ability, as firefighter to the ___________ Fire Department and the citizens of ___________. I will promote and protect the best interest of the ___________ Fire Department in accordance with the ___________ Fire Department policies.*

However, note there is no statement of *mission* in that generic oath of office. It is worth considering that the average person does not understand the inner workings of your fire department. Few people understand what it takes to fight a fire, which is why we often have to explain why we cut holes in people's roofs and smash out their windows. Unless you have a concise, direct mission statement, you can leave the impression that your department can do anything and everything that the public needs. We actually contribute to this misunderstanding by being helpful beyond the scope of our policies.

Let's say we get dispatched at 2:00 a.m. for an "investigation." We arrive on scene and find an elderly woman standing at the front door with a very worried look on her face. The company officer approaches her and asks, "What's the problem, ma'am?" Her response is to tell you the hose on her washing machine has broken, and water is shooting all over the basement. Do we tell her to call a plumber? No. We go down there, shut off the water to the washing machine, and likely help her move anything that is valuable or could be damaged. We do what we can to "protect" her property. That is what happens when part of your mission is to "be nice." I like that. I like that people, young and old, know that they can count on us when they need help. They know that we will not turn our backs on them.

When a young man or woman enters military service, the new recruit swears an Oath of Enlistment.

> *I, ___________, do solemnly swear (or affirm) that I will support and defend the Constitution of the United States against all enemies, foreign and domestic; that I will bear true faith and allegiance to the same; and that I will obey the orders of the President of the United States and the orders of the officers appointed over me, according to regulations and the Uniform Code of Military Justice. So help me God.*[1]

This is a much more clear-cut statement of mission, that is, to "support and defend the Constitution of the United States." The specifics of *how* you are expected to provide for that defense are left bit unclear. However, they are covered by the statement, "I will obey the orders of the President of the United States and the orders of the officers appointed over me."

When we look at the generic fire service oath, why is there no statement of mission? One reason may be that an oath of office is there to bind you to the organization and its policies. There is the unstated expectation that as the needs and mission of the organization change, you must "bear true faith and allegiance" to the organization. However, to recognize when the mission changes, it needs to be defined in the first place. It could come in the oath of office, or be lettered on the side of our vehicles, or be written on our departmental patch. Regardless of where it is written, it should be ever-present in the minds of our members.

Without a well-defined mission, there is significant room for ambiguity among our brothers and sisters and misunderstanding on the part of the public about what it is that we do. With ambiguity comes the risk of mission creep: the tendency of an organization to expand the mission beyond its original goal. It could be argued that mission creep in the fire service began when the first fire company responded to provide any service other than extinguishment. When we hear statements from politicians or chiefs like "We have to do more with less," we are being asked to accept mission creep.

The reality is that you cannot do more with less, unless you have developed a new process, technology, or technique that reduces the workload. Consider the modern airliner cockpit. The Boeing 727 was produced from the mid-1960s until the early 1980s. The 727 was an analogue machine; it was a three-engine aircraft, carried approximately 180 passengers. It had a range of approximately 2,800 miles and required a three-person crew to fly it. Conversely, Boeing's 777 airframe uses computerized flight control systems and engines, allowing it to carry more than 500 passengers, have a range of more than 6,000 miles, and require only a flight crew of two. These technological advances have allowed the airline industry to do more with less.

To date, few technologies have been developed that reduce the physical stress of fighting fire, carrying or dragging nonambulatory victims, and generally offering the opportunity to do more with less. But the reality is that fewer personnel assigned to a company or arriving on the initial alarm compromises the responders' ability to control the environment, search for and rescue victims, and extinguish the fire.

I could also argue that the technological development of bunker gear actually increases the need for personnel because of the added physical burden of an encapsulated ensemble.

Swearing (or affirming) allegiance to a specific mission means explicitly committing to the *values* of the organization. A simple statement like "The mission of Anytown Fire Department is to save lives and protect property" clearly defines the organization's purpose to its members as well as to the community it serves. Defining our mission for our personnel is perhaps more important than providing a mission statement for the community we serve is. If I work for the Anytown Fire Department, how do I know what is expected of me?

Of course, there are rules and regulations, standard operating procedures (SOPs), and guidelines . If you are a member of a unionized department, you also have a contract to follow. These documents all set out the expectations we must meet and generally set consequences if we fail to meet them. The problem is trying to capture in a succinct way just what our mission is.

Outside of the fire service I am proud to be an adult leader for a Cub Scout pack. Cub Scouts is an organization that teaches young boys about character and values. They are taught the Cub Scout Promise, the Cub Scout Oath, and the Cub Scout Motto. Those three elements, more than any others, really speak to the mission of Cub Scouting.

At the local level, however, I have found it worthwhile to have three rules that serve as the mission statement of our pack: *Be respectful, be responsible, and be safe, while having fun.* It is direct. It is concise. It lets the boys know what is expected of them. We fill in the details for them so they understand what each of those points mean, but even first graders can stand up if called on to say what those three rules are. Fire department mission statements should pass that standard set by Denzel Washington's character, Joe Miller, in the movie *Philadelphia*, "Now, explain this to me like I'm a four-year-old." If a young child cannot understand your mission statement, your personnel will not be able to live it on a daily basis. A nonscientific survey of a class of first-grade students produced the following results when asked what our job is:

> "A fire man is a person who puts out fires"
>
> "To make sure people stay safe."

> "I think a fireman's job is to put out fires. And I think they save people from the fire."
>
> "To help people in fires and to keep people safe."

Those are pretty direct and simple answers. How did we get away from that simplicity? Why do we feel the need to make this more complicated than it is? Sure, we do much more than just put out fires. We are involved in dozens of very important roles in protecting the communities we serve. So why can't we just define our mission as "to save lives and protect property?" We have a moving definition of our mission because we fail to recognize how critical mission statements are, and the role that virtues and values play in defining our mission.

9/11 and Our Mission

Since September 11, 2001, the fire service in the United States has been reeling. As a community, firefighters have struggled to deal with the grief and sense of loss that accompanied the deaths of 343 of our brothers in one fell swoop. That loss is most acutely felt by our brothers and sisters on the New York City Fire Department (FDNY). I'm sure that every single person employed by the FDNY on September 11 lost a friend that day. The sense of loss goes beyond what is experienced by those family, friends, and coworkers who lost someone that dreadful day. The whole of the American fire service has dealt with this loss.

I vividly recall being on duty that September morning. Just a shift day before, we had been talking about the incident during World War II when the B-24 Liberator bomber had flown into the Empire State Building. When I heard that a plane had flown into the World Trade Center, my first reaction was, "Wow, that's a weird coincidence." It was only when the second plane hit, as we watched live on CNN, that I realized the enormity of the situation. I remember later, when the first tower fell, saying to a coworker, "We just lost a hundred guys," and his reaction was one of shock. He could not accept the idea that such a thing happened. In the days and weeks that followed, we found out the true number. The FDNY lost half again the number of firefighters who had been killed in the line of duty since the department was founded.

As a community and a unique culture, the fire service is still attempting to cope with that loss. The number is so large and the cost so unimaginable that we are not yet able to fully comprehend the long-term effects. We are just now coming to understand the health effects on those responders who worked at Ground Zero. Sadly, we must recognize that we will continue to lose more of our own due to these long-term effects. The death toll of 9/11 will continue to rise.

Where "Everyone Goes Home" Goes Wrong

One effect of the massive shock of losing so many brother warriors on 9/11 is a growing trend toward risk aversion in the fire service. As a culture, the fire service is becoming less willing to risk our lives to achieve our primary mission "to save lives and protect property." This is my opinion—it is not based on any study or empirical investigation. It is not a view that my department, *Fire Engineering,* or PennWell have taken or endorsed. It is my impression of an attitude that is taking hold of the fire service.

During the 1990s, progressive fire service instructors and administrators saw the need to address firefighter fatalities. The number of firefighter line of duty deaths (LODDs) has stayed fairly constant, despite a decline in the number of structure fire responses. Our desire to reduce fatalities resulted in programs such as "Get Out Alive," "Saving Our Own," and the implementation of policies and guidelines requiring rapid intervention teams. We started addressing the Occupational Safety and Health Administration (OSHA) respiratory protection standard 1910.134, in the form of "two-in, two-out." We saw improvements in the implementation of NFPA 1500 and an increase in the deployment of safety officers. These were positive, proactive steps that recognized the inherent danger of firefighting and attempted to put in place training and response capabilities to aid in the reduction of firefighter fatalities. Since 9/11, however, the culture has embraced a new set of buzzwords: "Everyone goes home." The idea behind "everyone goes home" is that every firefighter should return to his or her loved ones at the end of the shift—that is noble goal. Unfortunately, it is a goal that is destined for failure.

Recognizing the need to reduce firefighter LODDs and fireground injuries is an important realization for the fire service. Approximately 100 firefighters die in the line of duty each year; the fire service must strive to embrace a model that limits, to the extent possible, these losses. We must not lose sight of the fact, however, that no matter what we do as a culture we will never achieve the goal of "everyone goes home."

Firefighting is a dangerous profession. In spite of our best intentions or the quality and efficacy of our training, apparatus, personnel, and equipment, firefighting will continue to claim the lives of men and women who choose to enter a building being ravaged by unrestrained fire. The fire service must come up with a better goal than "everyone goes home." Otherwise, we will find ourselves tied to a mission that is unrealistic and unattainable, and will ultimately mean that any loss of life is a failure.

Poorly defined missions have plagued our culture. A classic example is the US involvement in Somalia during 1992 and 1993. The United States initially went into Somalia in December 1992, the waning days of the first Bush administration. The intent was to provide humanitarian aid to a nation forced into starvation by vying factions of warlords seeking to use food as a weapon to gain the allegiance of the general population. We did help to restore the supply of food to the underprivileged and malnourished. We used our military's capacity for force to ensure that food would reach the starving people. We kept the warring factions in check by an overwhelming show of military might. It was clear that the US Marine Corps was not going to tolerate any resistance from the militias.

Once the food distribution networks were established, and a relative calm was restored, the United States began to scale back its presence. We replaced US Marines with a United Nations peacekeeping force. Once we turned the mission of limiting the ability of the warlords to use food as a tool of power over to the UN, those successes began to be undone. The UN forces in Somalia were unable maintain the level of intimidation, for lack of a better term, that the US Marines had mustered. The warlords began to strike at the UN peacekeepers, which culminated in the mutilation of a group of Pakistani soldiers who had been ambushed by militia members.

The response by the Clinton administration was to launch a campaign by Special Operations Forces against Mohammed Farid Adid, the most powerful of the warlords. Mission creep began: the original mission of feeding the starving warped into an exercise in regime change and nation building. The new mission centered on capturing Adid. The US strategy was predicated on the belief that if his clan could not challenge the nongovernmental organizations and UN forces, the violence would end and food would be distributed again. The attempt to achieve that goal led to the October 3, 1993, battle, now familiar to the general public from the movie *Black Hawk Down*, based on Mark Bowden's book by the same name. The ability of Adid's clan to starve its own people was disrupted. However, despite the successful execution of multiple complicated and high-risk special operations missions, the overall Task Force Ranger mission was deemed a failure because it did not succeed in capturing Adid. A poorly defined mission statement resulted in what was otherwise a significant and helpful military operation being labeled as a failure.

That so-called failure defined the manner in which the US military was used for the remainder of the Clinton administration and arguably until the terrorist attacks of September 11, 2001. Our political leaders became risk averse, afraid of the public reaction that would come from the loss of American lives. The fear of public reaction to the sight of slain and injured American service men and women on CNN changed the foreign policy of the United States of America. We became involved in the conflict in Bosnia but executed the bulk of our operations using airpower. We avoided involvement in the genocide in Rwanda out of fear of the cost it would have had in US lives.

We allowed Saddam Hussein to interfere with the efforts of UN arms inspectors and to target our aircraft that were enforcing the no-fly zones. We failed to prevent Osama bin Laden from attacking our embassies in Kenya and Tanzania or to avert the bombing the *USS Cole*. The United States' response was a handful of token cruise missile strikes in response both in Iraq and in response to bin Laden. Our leaders' fear of public reaction to the potential loss of American soldiers' lives caused the nation to become risk averse. It may have set the stage for the very terrorist attacks that engendered our newfound risk-averse culture in the fire service. Reeling from that shocking public loss of life in Somalia caused our national leaders to recoil from using our troops in other conflicts. We should be concerned that if we focus our sights on the goal of "everyone goes home," we may eventually no longer accept *any* risk to our firefighters.

The goal behind “everyone goes home,” is a good one: to raise awareness of the conditions that are killing firefighters and to seek to reduce or eliminate the preventable causes of LODDs. If we look at the LODD statistics from the US Fire Administration (USFA), we can see many trends, situations, and conditions in which firefighters lives are imperiled. However, we must first address the source of our statistics. In 2003, President George W. Bush signed into law the Hometown Heroes Survivors Benefits Act. This piece of legislation redefined the criteria for the circumstances necessary to be considered an LODD. The USFA report, *Fire Fighter Fatalities in the United States in 2008*, distinguishes between the criteria used before and after Hometown Heroes Act became law.[2] In 2008 there were 118 LODDs, 11 of which were included because of the Hometown Heroes Act. The Act provides that a heart attack or stroke resulting in a fatality is assumed to have been caused in the line of duty if it occurs within an interval after the end of a shift.

According to the USFA data,

- 24% of the firefighters killed in 2008 died while performing their job on the fireground
- 20% died as a result of fatal injuries sustained responding to or returning from an incident
- 26% died as a result of other on-duty nonemergency responses
- 10% died during a training evolution
- 9% died as a result of a nonfire emergency response
- 11% died after an incident, after reporting feeling unwell (fig. 1–1).

We can also examine the causes of fatal injuries and the relative percentage of fatalities caused by a particular injury (fig. 1–2).

So, if in a perfect world no firefighter died from a heart attack, stroke, heat exhaustion, or in an apparatus accident, we would still have lost approximately 38 firefighters in the line of duty. Such an achievement would be incredible! To reduce firefighter LODDs by nearly 70% would be something to celebrate. However, if we take the goal “everyone goes home” literally, it is still a failure.

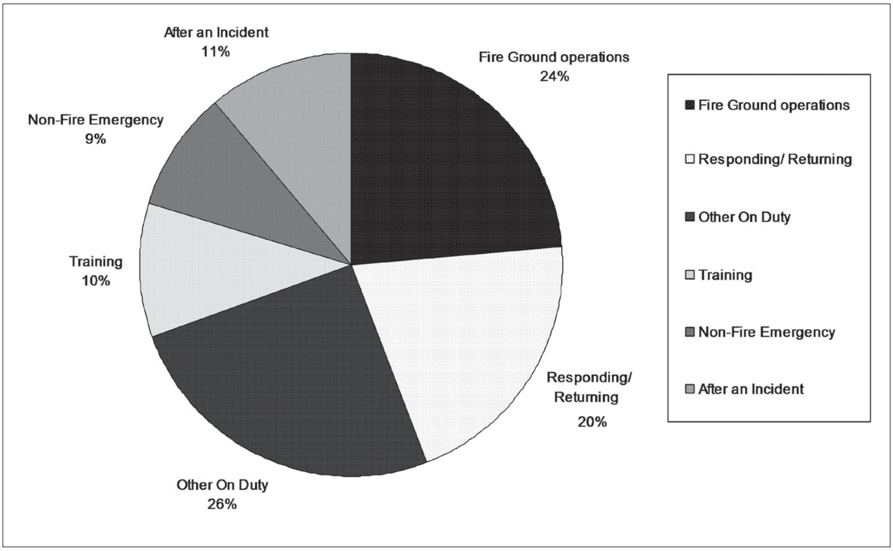

Fig. 1–1. Where firefighter LODDs occur

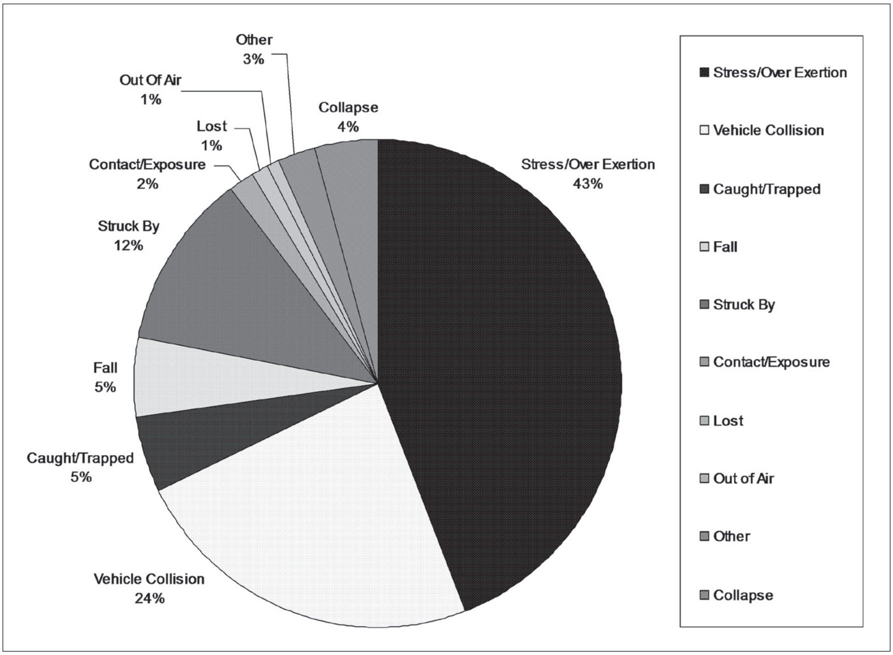

Fig. 1–2. Causes of LODDs

When I say "everyone goes home" is an impossible mission, I am not advocating a culture that accepts firefighter fatalities as a cost of doing business. I do not believe the fire service should promote a culture of "acceptable losses" in the way the military must. Military operations are planned with an understanding that some members will be killed and others gravely wounded, because they are battling an enemy that has its own will and capacity for violence. As professionals—as *fire service warriors*— we must strive to see that all our members are trained to be the best they can be and given the best apparatus, personnel, and equipment to operate safely. We must also acknowledge that despite our best efforts, unless we stop running into burning buildings, some of our people will die in the line of duty. We must be ready to accept that even with the best of intentions, we will lose people.

Our focus must be to teach our brothers and sisters not to die in vain. What makes a death a heroic one, though? That question is one of philosophy. I would argue that any time a man or woman goes into harm's way to defend another person, that is a heroic act. If in doing so, the rescuer loses his or her life, then this death is a heroic one. Those 343 firefighters, along with their police brethren, who died on September 11, did so heroically. Their deaths were not tragic—they were noble and honorable. The people who got up and went to work in the Twin Towers died tragic deaths, because they did not willingly assume a risk to life and limb when they set out that morning. I am sure there were many acts of heroism once the planes hit, and probably many people who in died in heroic ways, but all in all, their deaths were tragic. The people who died at the Pentagon died heroically; they went to work that morning in the world's largest military target to defend the United States of America. Accepting that they were a potential target for a terrorist attack or an act of war, they went to work to "defend the Constitution of the United States against all enemies, foreign and domestic." It is a fine line, a splitting of philosophical hairs, when we try to label a death as heroic or tragic. I like to refer back to the quote at the beginning of the chapter, *"Consequently, when a man becomes a fireman, his act of bravery has already been accomplished." When we choose to accept risk for the betterment of society, we perform a hero's act.*

On that sunny Tuesday morning in September, thousands of brothers and sisters showed up for work ready to risk their lives so that others might live. When they arrived at the World Trade Center, they selflessly, and without hesitation, climbed the stairways of those doomed buildings with the thought of saving lives. That day, 343 firefighters perished, but there is no question that they chose to be there. Many jumped onto apparatus even though their tour had ended. They knew that people were in danger, but more importantly, they knew their brothers and sisters would be in danger and they wished to be nowhere but at their side. They saved thousands of innocent men and women that day. The tendency to label those deaths as tragic does a disservice to those who fell. As soon as we apply the label of "tragedy" to an event, we assume that it should be prevented from happening in the future. Each of us who shows up to board a piece of fire apparatus should be ready and willing to make that climb, if faced with a similar incident.

In the United States, roughly 100 firefighters a year are killed in the line of duty. Approximately 50% of those deaths are due to heart attacks, and another 25% are due to apparatus accidents. That still leaves roughly 25 firefighters a year who die because of things like being trapped, disoriented, or struck by a wall or collapsing roof. We buried 118 brothers and sisters in 2008 and 93 in 2009, and as of the day I write this in 2010, we have seen 15 LODDs.

Events like the terrorist attacks of 9/11 are aberrations. The incidents that cause me to pause and ask, "Did this have to happen?" are those line of duty deaths that were absolutely preventable. For example, Robert Gallardy, a 47-year-old fire captain from Pennsylvania, died from burns he suffered while conducting a training burn. According to a National Institute for Occupational Safety and Health (NIOSH) fatality investigation, a key factor may have been that "excessive heat in the burn room caused a catastrophic failure of the victim's SCBA [self-contained breathing apparatus] facepiece lens."[3] This report indicates that conditions in the burn building were excessive and failure of the captain's facepiece led to the thermal injury that ultimately resulted in his death two days later.

Then there is the case of Lt. Curtis Meyran and Firefighter John Bellew, who, along with four other brothers, jumped from a fourth-floor window of a New York City tenement because of uncontrolled fire spread. They died, and their bodies broke the falls of the four men who lived. According to a NIOSH report, they died because of an illegal renovation:

> *The transformation of the 4th floor apartment into a Single Room Occupancy (SRO) led to the construction of an interior partition wall that impeded the discovery of the fire and hindered the fire fighters' searches. It also prevented fire fighters from reaching the rear fire escape, their secondary means of egress.*[4]

These are examples of deaths that were likely preventable while still accomplishing our goal of “saving lives and property.” In the case of Captain Gallardy, ensuring compliance with NFPA 1403, *Standard on Live Fire Training Evolutions*, may have avoided the excessive heat conditions. In the FDNY incident where Lt. Meyran and FF Bellew perished, a more thorough system of building inspections may have prevented the illegal renovation. These incident are not indictments of the men who died, but warnings that we must be vigilant.

On February 11, 1998, my friend Tony Lockhart, along with firefighter/paramedic Patrick King, died when he became disoriented and ran out of air inside a tire shop at 106th Street and Western Avenue in the City of Chicago. Could Tony or Pat have been saved? If the level of training in firefighter survival and rescue that is now widely available had been taught back then, it is possible that Tony or Pat may not have perished. If proactive search techniques or thermal imaging were in use at that time, it is possible that they might have lived. The backdraft that caused the disorientation, which resulted in Tony and Pat becoming lost and running out of air, was attributed to a short circuit in an overhead door opener. It might have been one of those fires where even if we had perfect knowledge and perfect operations, we might still have lost people.

Like our brother and sister warriors in the military and law enforcement communities, the fire service warrior must accept that dying, or being horribly disfigured or maimed, is a distinct possibility. This should not be a fatalistic attitude, but a willing assumption of risk. As I explore the idea of the fire service warrior, I will describe the personal condition we must develop and how to develop it.

The Warrior Ethos

An ethos is “the fundamental character or spirit of a culture; the underlying sentiment that informs the beliefs, customs, or practices of a group or society; dominant assumptions of a people or period.”[5] To use more familiar language, an ethos is our “corporate culture.” It is the way we view what is expected of our group. The US Army, in Field Manual 7–21.13, *The Soldier’s Guide*, says the following:

> *At its core, the warrior ethos is the refusal to accept failure and instead overcome all obstacles with honor. It begins as the soldier's selfless commitment to the Nation, mission, unit and fellow soldiers. It is developed and sustained through discipline, realistic training, commitment to Army values, and pride in the Army's heritage.*[6]

When we look to the definition of ethos, we see "beliefs, customs, and practices" highlighted, and in the Army's explanation, they highlight values. Before describing the ethos that I believe defines the "beliefs, customs, and practices" of a fire service warrior culture, we need to examine the importance of virtues and values.

In *The Soldier's Guide*, the US Army takes the time to outline its values and explains briefly how each member is supposed to embrace those values on a daily basis. It provides a foundation that every soldier, enlisted or commissioned, can refer to as a guide. Similarly, the US Marine Corps has *Marine Corps Doctrinal Publication 1— Warfighting* to define the nature of war and express the critical skills a Marine must possess.

The fire service has not yet defined our ethos in a universal way; we have not done so at a national level. This omission can lead to confusion on the part of the public, and our elected leaders, about the level of risk our agency has chosen to accept. Fire does not care if you are

- a full-time union firefighter in a major urban area with four- or five-member companies;
- a part-time firefighter in a small suburb;
- a volunteer in a rural area; or
- a mixture of all those circumstances.

Fire burns the same way in New York City as it does in Fargo, North Dakota, or in Princeton, Kentucky. Gravity acts the same in all three places. There may be some variation in the types of building construction that are most common. There are differences in the water supply systems and in the tax bases those communities can use to staff and equip a department. The fires themselves are the same. The risks to our brothers and sisters are the same. So, a common set of virtues and values should be able to work for all fire service warriors no matter where they stand watch over their neighbors.

Virtues and Values

The mission statement “everyone goes home” is one that will ultimately fail. I have illustrated briefly but effectively that firefighter fatalities will occur no matter what efforts we make to avoid them. If we cannot achieve the stated goal of *everyone* going home, then we can say that the goal will ultimately fail. The next logical question then is, does it *really* matter that we have an unachievable mission? Mission statements are words; do they carry any significance in and of themselves? Our mission statements serve as a definition of our virtues and values. Our virtues and values set the course of our corporate culture. The mission of the fire service is “to save lives and property.”[7] How we go about that, and the extent to which we are willing to place our fire service warriors in harm’s way to accomplish that task, is a matter of our value systems.

I have often heard it said, and have myself spoken these words: “We didn’t start the fire.” “We will do everything we can, but this is not my fault.” “I’m just here to help.” “No one signed a suicide pact when they filled out the application, did they?” Those are all critical points to acknowledge and accept. Two considerations are vital to keep in mind as you approach a situation:

1. Remember that it is not your fault.
2. You do not have to “waste” your life on a losing proposition with little or nothing to gain.

However, we must consider that in our role as public servants, or more appropriately, servants of the public, we must take risks that others will not.

The standard fire service risk assessment criteria heard over and over is a variation on “Risk a lot to save a lot; risk a little to save little; risk nothing to save nothing.” Who decides what is “a lot,” though? (See fig. 1–3.)

Fig. 1–3. What level of risk are you willing to assume?

Obviously, if you respond to a working fire where there are lives to be saved, it is worth risking your life. For example, it's 10 p.m. and there is dense smoke pushing out under moderate pressure from a basement window. As you pull up, "Mom" is on the front lawn saying that her five-year-old is trapped in his bedroom. Most of us would say that is a "risk a lot" moment. A life is on the line, and as long as the building seems even moderately tenable, we are going to try and make the grab and get the kid out. In the same vein, we can all find some agreement that a known vacant building, with no squatters or homeless people inside, and removed from any exposure, is a "risk nothing" kind of situation. There is no reason for us to commit our people to fighting this fire from the inside. Sure, it's fun to fight fires, because we don't get many, but committing personnel inside a building of no value just for thrills is a dangerous level of bravado that cannot be tolerated. There is no reason to put anyone's life on the line for a building that should get bulldozed.

The two preceding scenarios are examples of pretty clear-cut risk assessment decisions. Life does not often present us with many clear-cut choices, though. Let's consider a more likely scenario.

It is 3:00 p.m. You arrive on scene of a two-story, wood-frame building with heavy fire volume on the first floor and turbulent, brown/black smoke venting from the second-floor windows. You can see from the front lawn that the fire has involved the rear half of the building and is beginning to compromise the interior stairs. Neighbors are screaming from across the street that "the kids are home from school!" What do you do? Offensive interior attack, vent enter search, exposure protection? There is no one right answer. It depends on your department's capabilities, first-in personnel, standard operating guidelines, and *your values*.

If we use our normal risk management criteria, the real question is "what is the value?" Is this a "risk a lot" moment? Is this a "risk a little" moment? We all have to make this decision. It doesn't matter if you are the probie with six months on the job or the 20-year battalion chief, you need to decide: What is this worth? Is it worth your life? Is it worth the lives of your firefighters? How you make that decision is based on what you value, your experience, and, most important, your view of what is an acceptable risk. It will be based on your virtues. Fire chiefs, as the senior officers and, ideally, leaders of their respective departments, have a moral responsibility to establish the virtues and values of the department.

Value has many meanings. When we use it in a sentence starting with "Our values include…," we mean it in a sociological sense. Values can be defined as "the ideals, customs, institutions, etc., of a society toward which the people of the group have an effective regard."[8] Western peoples are said to value the rights of an individual, whereas Eastern cultures have traditionally taught that the primary duty is to the whole society. In the papal encyclical *Humanae Vitae*, Pope Paul VI articulated the value of human life accepted by the Roman Catholic Church.[9] Values can vary from culture to culture.

Virtue has a distinct meaning from that of value. Virtue can be defined as "conformity of one's life and conduct to moral and ethical principles; uprightness; rectitude."[10] Virtues can be said to be universal. Nancy Sherman, in *Stoic Warriors*, says, "Virtue alone becomes sufficient for happiness without dependence on external goods or luck."[11] In other words, a virtue is virtuous regardless of how we view it, whereas a value is relative to its importance to the community. Once again we may be splitting hairs. For the purposes in this book, virtues mean universal truths, and values have a certain amount of relative worth depending on the culture.

As we try to determine what the virtues and values of the fire service are, we can look both within the fire service community and to like-minded groups of warriors.

A cursory search of fire service literature begins to paint a picture about how the fire service has approached defining its virtues. In reading and researching dozens of respected texts, I found no indexed reference to *virtues*. A quick Google search turns up 163,000 hits for the phrase "fire service virtues,"[12] yet none of the top 10 listings sets out a clearly defined list of our virtues. A search of the websites of the International Association of Fire Fighters, the International Association of Fire Chiefs, and the US Fire Administration turns up no list of fire service virtues. How can we begin to establish our values if we have not first defined our virtues?

Historically, the four cardinal virtues are wisdom, temperance, courage, and justice.[13] These four virtues developed from the teachings of Socrates and other Greek philosophers of the pre-Christian era. Other examples of virtues can be found in the code of chivalry, the Japanese samurai's *Bushidō* code, and the US Army's Seven Values. Chivalry has been defined as "the sum of the ideal qualifications of a knight, including courtesy, generosity, valor, and dexterity in arms."[14] The *Bushidō* code spells out nine virtues: honor, loyalty, courage, respect, honesty, wisdom, filial piety, rectitude, and benevolence.[15] The US Army's Seven Values are honor, loyalty, personal courage, respect, duty, selfless service, and integrity.[16]

There are striking similarities among these systems. Courage, honor, loyalty, and respect appear in both the Army's Seven Values and the *Bushidō* code. If we compare these two codes with the four cardinal virtues, we see courage is referenced in all three systems. The cardinal virtue of justice, furthermore, can be said to embody the same objective role as respect does in the Army and samurai systems.

Two authors have taken up the task of defining the values of the fire service. Rick Lasky and John Salka are both well-known chief officers who have promoted core values as critical to defining the mission of the fire service. In his book, *Pride and Ownership*, Lasky emphasizes three values: pride, honor, and integrity. These three values share many similarities with those we have already discussed. In *First In, Last Out*, Salka says that "we can legitimately lay claim to some pretty lofty values—things like love, bravery, and heroism," and that the FDNY emphasizes operational values like, fitness, situational awareness, and brotherhood.[17]

To help define our role and responsibility to our community, we must define a set of virtues. Drawing on the historical codes and the books just described, I believe that the virtues of honor, courage, and duty should be our code.

Honor

As virtues go, honor is universal in that it encompasses so many of the other values we warriors aspire to. Honor is "honesty, fairness, or integrity in one's beliefs and actions."[18] We cannot aspire to Chief Lasky's values of pride and integrity if we do not have honor. The virtue of honor defines a person's character in a way that courage and duty do not. It goes to the very core of a person's ethical system. The idea of being honorable is seen in warrior culture throughout time. A key reason for this is because without honor, a man or woman engaged in the action of fighting fellow humans could engage in actions that are illegal, immoral, or unethical. We can all agree that the looting, pillaging, and raping that has occurred in war throughout time, and right up to the modern day, is dishonorable.

Honor is a universal virtue. The values respect, integrity, loyalty, and justice can only be achieved when honor is present. New cadets at the US Military Academy at West Point learn from day one, "A cadet will not lie, cheat, steal, or tolerate those who do."[19] If we do not have respect for the citizens we serve and our brother and sister fire service warriors, then we are not honorable. Yamamoto Tsunetomo, in the samurai text *The Hagakure*, says, "For the most part, samurais who do not adhere to honor and wealth will abuse others and fall into cynicism."[20] The virtue of honor provides a foundation that the values of respect, integrity, loyalty, and justice are built upon.

Courage

Courage is the virtue that enables us to do our duty. If our duty is to ignore everything we learned as children and run into a burning building, then courage is an essential virtue to possess. Courage is "the quality of mind or spirit that enables a person to face difficulty, danger, pain, etc., without fear; bravery."[21] "Without fear" is a topic we will take up as we explore the body's response to life-threatening stress, as well as the Stoic ideas of just what an emotion is. I agree with Mark Twain, who said, "courage is resistance to fear, mastery of fear—not absence of fear."[22] If you experience no fear, you are probably somehow maladapted or pathological. Your brain is supposed to signal when a life-threatening situation is facing you. Those signals trigger the response of the sympathetic nervous system to engage your fight-or-flight response. If you have absolutely no realization that there is a threat, then there is something wrong with you.

The key for the fire service warrior is mastery of fear. We embrace our virtues, and the supporting values, to ensure that we do not wither under the threats we confront, but we respond with courage in the face of fear. General George Patton once said, "All men are afraid in battle. The coward is the one who lets his fear overcome his sense of duty."[23] When we think of examples of courage, it is easy to find models to emulate.

Take, for example, the story of the 300 Spartans. As the legend goes, 300 Spartan warriors—the Special Operations Forces of Ancient Greece—went to defend the pass at Thermopylae from the invading Persian hoards, numbering in the tens, if not hundreds, of thousands. The legend has gained renewed interest since the movie *300* was released in 2006. These highly skilled warriors are said to have gathered allies from other Greek city-states along the way and defended the pass at Thermopylae, while a naval force kept the Persian navy from circling behind them. They went into battle knowing that their deaths were likely, and yet they went anyway to defend their homes and families, and perhaps to defend the democratic ideals of Greece. This is an extreme example of courage, to be sure, but it is one that cuts right to the point. Courage is the willing assumption of risk.

As fire service warriors, courage is a virtue that we embrace to overcome our fears of dying or being horribly injured. Mastering our fear requires us to embrace the values of selflessness and self-confidence.

Duty

Duty is "the binding or obligatory force of something that is morally or legally right; moral or legal obligation."[24] We have a duty to the citizens we protect. We have a duty to our brother and sister fire service warriors. It is this duty that defines so much of what we do, both morally and legally. In the fire service we are familiar with the idea of "duty to act," a legal definition of duty. That duty to act is why we do not get to pick and choose what emergencies we will respond to. It has already been said that we did not sign a suicide pack when we swore our oath to protect lives and property. We did voluntarily, and ideally without mental reservation, assume a duty to stand between the average person and the effects of unrestrained fire. No, we did not cause the emergency, but we are expected to perform our duty and mitigate it.

Those people standing across the street expect us to go into that burning building—regardless of the time of day, the weather, or any other factor—do everything within our ability to search for the missing kid, and put out the fire. They expect us to be willing to "hang it out there," to try, even when the outcome is uncertain. That is why they pay taxes or give donations to support the fire department. They have a reasonable expectation that we have volunteered to step up and go to battle for them. As General Robert E. Lee, a man history remembers as having acted based on his perception of his duty at all times, said, "Duty is the most sublime word in our language. Do your duty in all things. You cannot do more. You should never wish to do less."[25] (See fig. 1–4.)

Fig. 1–4. It is our duty to protect our neighbors from fire.

That is why the public looks up to us. That is why we have a reputation that politicians, corporations, and our local cops all would die for. We are the ones who make those selfless choices and do everything we can to save those people and things that are near and dear to our community. People love firefighters. It seems corny, like something out of a Norman Rockwell painting, but it really is true. They love us because we are the ones who do things no one else will. They love us because we rush into the very building they are rushing out of. We owe it to our citizens to either live up to their expectations or tell them exactly what we will and will not do.

I may be going out on a limb when I say this, but, *we are supposed to risk our lives*. Taking risks is part of the gig. You wouldn't join the Marine Corps and then say, "Hey, what do you mean you're sending me to Afghanistan? I didn't sign up for that!" Yes, in fact, you did. No one put a gun to your head and said, "You will be a firefighter." You picked this job. You stood up, raised your hand, and said, "pick me!" If you are a career firefighter, you probably studied very hard to become certified as a firefighter or paramedic, or to earn a degree. You took a half dozen hiring tests, and did everything you could to get hired. You did not just wake up one morning and find out that you were in a job in which someone expected you to risk your life.

The duty of a firefighter is captured in the mission statement we began the chapter with, "to save lives and protect property." Firefighters exist to find the seat of a fire and quench it. Our duty also includes following the orders and directives of the officers appointed above us. We talk a lot about "leadership" in a variety of situations. We must also be prepared to be good followers. There can be a temptation to ignore our responsibility to be a good follower, especially if we fail to acknowledge the paramilitary nature of the fire service.

The duty of a company officer is to ensure that the task and tactical level of operations is conducted in an effective and efficient way while being relatively safe. The priorities of a company officer should come back to "the three F's": firefighter, fire engine, firehouse. Your duty is to make sure that every member of your company is fit for duty and help them achieve the *ready position*.

A fire chief's duty includes being 100% honest with the elected officials to whom he or she reports, and to the citizens of the community we protect, about fire service virtues and values. A chief who advances a risk-averse policy that *only* allows for an offensive fire attack when there is a *confirmed* risk to life must stand up at the city, village, or district board meeting and say, "We will not risk the lives of our members unless we are 100% certain there is a life in jeopardy." It is those people, our elected officials and our citizens, whose expectations we must live up to.

The duty of each and every fire service warrior is to always be ready to fulfill our mission to "save lives and protect property." To accomplish our duty, we must live the virtues of honor and courage each day. I hope that by bringing together the many elements of the ready position, I can offer you, my brother and sister fire service warriors, a set of tools to help you fulfill your duty.

The Values of a Fire Service Warrior

While virtues are the foundation of our character, values form the load-bearing walls that support everything else. I have said that in order to be honorable you must possess the qualities of respect, integrity, loyalty, and justice. In addition, the values of selflessness, self-confidence, and self-control are critical if we are to be able to courageously fulfill our duty.

Respect

Having respect for our fellow warriors and the citizens we serve is critical. Respect can be defined as showing "regard or consideration for."[26] Obviously, in the firehouse we need to have respect for our brothers and sisters. It is a communal life; in many cases, we live under the same roof for 24 hours at a time. Even in the case of volunteer or on-call departments, there is still the communal existence that comes with firehouse life. There are dishes to wash, floors to be mopped, toilets to clean, vehicles to maintain, and scores of other day-to-day activities that we are responsible for. If we ignore these responsibilities, or do them poorly, we are showing a lack of respect for our brothers and sisters. That lack of respect quickly brings about animosity and weakens our team.

It is equally, if not more, important that we are respectful of the citizens we serve. They rely on us; they look up to us. The community needs to know that we respect them, because they should never question if we have their best interests at heart. They let us into their lives in moments of profound stress: Their house is on fire; they are hurt and need care; they see the things and people that matter to them in danger. They need to know that when we break their windows or cut a hole in their roof, we do it because it is necessary, not out of some lust for destruction. They have to believe we are cutting their clothes off because it is a medical necessity. They must know that we are honorable men and women, and they will only accept that if we show them respect.

Integrity

Integrity is “adherence to moral and ethical principles; soundness of moral character; honesty.”[27] If we lack integrity, then we cannot have honor. When it comes to our job as fire service warriors, integrity means that if you say you checked the saw, you actually checked the saw. We have responsibility for literally millions of dollars worth of equipment. We perform checks and maintenance because the tools, equipment, and apparatus all have to work if we are going to accomplish our mission of saving lives and protecting property. Integrity goes beyond just making sure you have completed a checklist honestly. If you are not fit enough or skilled enough to perform the strenuous tasks that we are all called upon to do, you are in fact being dishonest. As a member of the fire department, you are representing to the community that you have the skills to save lives. If you cannot accomplish those tasks, you do not have integrity. Do we all have the same work capacity? No. Do we all have the same capabilities? No. Having integrity means that you strive to do the best *you are capable of*, not just the minimum standards. It means that you are honest with yourself about your strengths and weaknesses.

Loyalty

Loyalty is “the state or quality of being loyal; faithfulness to commitments or obligations.”[28] We have to show loyalty to our brothers and sisters, to our department and to the community we serve. Loyalty is why in December 1999 six firefighters died in Worcester, Massachusetts.[29] Four of our brothers went in to search for two who had become lost in a cold-storage warehouse. They in turn became disoriented. All six perished. Loyalty to their fellow fire service warriors is why the four men went into that building to search for the lost firefighters. A brief description of the fire is on the website for the Worcester Firefighters Memorial Park:

> *The Rescue 1 team of Firefighter Paul Brotherton and Firefighter Jerry Lucey entered the building searching for occupants. Fire conditions worsened in the building at an alarmingly unexpected rate. Paul and Jerry, on the fifth floor, became disoriented in the smoke-filled building. Lost, and running low on air, they called for help. Several teams began searching for the lost fire fighters. Two teams*

> *reaching the fifth floor also found themselves disoriented in the smoke and trapped by the maze of interior walls —Lieutenant Tom Spencer and Firefighter Tim Jackson from Ladder 2, and Firefighter Jay Lyons and Firefighter Joe McGuirk from Engine 3. Though many more brave fire fighters attempted to locate their missing brothers, their efforts proved futile.*[30]

We recognize a commitment not only to our communities but also to our brothers and sisters. If you are going to call yourself a fire service warrior, you must make that commitment. Your loyalty should not just be seen in moments of mortal danger, though. Loyalty to your fellow warriors means that you help them when they need it. Does the new person need help learning the compartments on the engine? Has the 15-year engineer gotten lazy about checking the rig? Does the lieutenant hurry through the training plan to go on the computer? We all will have days where even with the best of intentions we cut corners. If we are being loyal to one another, we try to minimize those times in ourselves, and try to help the men or women next to us when they are having a bad day. I have heard it said about marriage that your partner is there to "talk you in off the ledge" when you have a bad day, and you do the same in return. In the firehouse it is no different. When our brother or sister is having a hard time, we show our loyalty by picking them up, not knocking them down with insults and mocking.

Justice

Justice is "the quality of being just; righteousness, equitableness, or moral rightness."[31] Justice is a quality that we may not see as being foremost in our job descriptions. People tend to see justice as the realm of police officers or attorneys. We have a responsibly to be just in our handling of emergencies. When you arrive at a fire with dozens of people hanging out the windows, or a mass casualty incident, you need to be just in triaging the scene. You *will* make decisions that affect whether people live or die. You must know, and the public must know, that those choices are based on a moral rightness.

Selflessness

Selflessness is “having little or no concern for oneself, especially with regard to fame, position, money, etc.; unselfish”[32] It could be said that being altruistic is the same as being selfless. I disagree with that idea. Altruism relates directly to doing something for the benefit of humankind. A celebrity donating money to a children’s hospital is altruistic. When we think of an altruistic person, however, we do not assume that their willingness to help comes at the possible cost of their life.

Fire service warriors are selfless. They recognize that each and every time they enter a burning building, it could bring about their death or grievous injury. It is an inherent selflessness that supports our courage. This selflessness must come from an inner belief in the righteousness of our duty. We see that there is a noble quality in placing ourselves between our neighbors and the threat of unrestrained fire.

Selflessness, however, is not the same a being suicidal. We should not perform kamikaze missions in which we have taken the idea of selflessness to the extreme of having no regard for our lives. To have the courage to do our duty, we must be willing to set aside the instinctive desire to protect ourselves by not allowing the flight portion of the fight-or-flight response to kick in. We must measure the circumstances, decide if this is a “risk a lot” type of fire, and then choose whether to enter the building or not. For the fire service warrior who goes into burning buildings to fulfill his duty, selflessness means willingness to risk everything—while managing the environment—to protect ourselves, our brothers and sisters, and our neighbors.

Selflessness is not just a quality that the line firefighter must have. It is incumbent on those who lead firefighters to do everything possible to ensure that our fire service warriors go home. This means:

- conducting realistic scenario training to prepare for the chaotic environment of the fireground;
- developing sound standard operating guidelines that define our mission and our strategic priorities; and
- ensuring that we have enough personnel to make the building tenable for our people, rescue the occupants, put the fire out, salvage their belongings, and be ready to rescue our brother and sister warriors if they get in trouble.

Selflessness for a leader means investing the time and energy to recruit, select, and train men and woman who will strive to be fire service warriors. Selflessness is investing the effort into developing our people, that is, working with them to improve their weaknesses and allowing them to use their strengths to benefit the team. If I do not possess selflessness, then I cannot act with courage.

Self-Confidence

Self-confidence is a value that can mean many things if we do not qualify the definition. I use "self-confidence" to describe the values a fire service warrior must have, which are "realistic confidence in one's own judgment, ability, power, etc."[33] In this case, it is not an outlandish self-confidence or cockiness, but a very realistic quality that is critical to having the courage to perform our duties. Why is self-confidence important for courage to thrive?

For courage to enter into possibly life- or limb-threatening situations, you must have the self-confidence to believe you possess the tools and training to emerge victorious. If you are filled with self-doubt, then there is the very real possibility that your fear may overcome you. What must we possess to have self-confidence, though? Ability and judgment are two traits highlighted in the definition of self-confidence that we are using. It is imperative that we have the knowledge, ability, and skills to perform on the fireground. If you are not highly skilled in the use of your SCBA and enter a burning building, then the question becomes, are you acting courageously or foolishly? Merely following the herd isn't courageous.

How skilled are you in ventilation? If you rush up and smash out the front picture window as the engine company is making entry through the Division A door, to the onlooker, you have performed courageously. You rushed to battle. But to anyone with basic knowledge of ventilation techniques, you behaved foolishly—you created an opening that will pull the fire on top of your brothers and sisters making the initial attack. Your judgment was lacking and may have gotten someone hurt or killed.

True self-confidence involves knowing not only your strengths but also your weaknesses. Weakness does not have to be a bad word. I am not as skilled at vertical ventilation as I am at being the nozzle operator on an attack line. I can safely and effectively perform the job of opening the roof, but I will not be as efficient as a brother or sister who counts vertical ventilation as a strength. As a result, it is incumbent on me to work on my weakness and improve that skill. *The Soldier's Guide* (the Army publication) addresses the topic of self-confidence in part by saying, "self-confidence comes from competence. It's based on mastering skills, which takes hard work, realistic training and discipline."[34]

Self-confidence is directly tied to judgment and the escalation of fear-induced cognitive malfunction. In *Sharpening the Warrior's Edge*, Bruce Siddle, the author and well-known survival instructor, states, "The effects of confidence have a very profound outcome on survival performance. As a state of mind, we know that a confident mindset maintains lower heart rates which are critical to cognitive processing and survival skill performance."[35]

Self-Control

Self-control is the quality that allows the fire service warrior to strive for the ready position day after day. Self-control can be defined as "control or restraint of oneself or one's actions, feelings, etc."[36] For the fire service warrior, being in the ready position means having the underlying virtues of honor, courage, and duty. The values that support our three virtues are open to individual interpretation, though. Self-control is what gives us the motivation to get into the weight room to develop the strength we need to perform rescues, pull ceilings, and drag hoselines up three floors. Self-control is what causes us to say, "I don't need to sit in the recliner; I need to make sure I know how every tool on the engine works." Self-control is the "good angel" that says, "Hey, there is very little smoke in here, just open the windows and take down the blinds. Don't just destroy this family's property!"

Self-control is a key quality for courage and honor to thrive. If you become enthralled in the adrenaline rush of smashing windows, tearing down ceilings, and throwing objects out the window, then you are not in control. You cannot treat others with respect or have integrity if you are not in control of your emotions and thoughts. I will venture to say that we all struggle to truly have the self-control to live up to the Cub Scout Motto and "Do your best." It requires perseverance and a choice-centered approach to possess real self-control.

We may not be at our best each day. But if we continually remind ourselves—and our brothers and sisters—that it is our *choice* to be a fire service warrior, not just someone collecting a paycheck, we can use self-control to our advantage.

Living with Honor, Courage, and Duty

One of my "idols" in the fire service has been Bob Hoff, Fire Commissioner of the Chicago Fire Department, a well-known instructor and coauthor of *Firefighter Rescue and Survival.*[37] Commissioner Hoff comes from a fire department family. His brother Ray is a retired battalion chief, and his father, Assistant Drillmaster Thomas Hoff, was killed in the line of duty. Bob Hoff is the living embodiment of what a fire service warrior should be. He is a very respectful, humble man, whose honor, courage, and sense of duty are obvious to anyone who meets him. Hoff has been recognized multiple times for bravery.

On November 24, 1997, while returning to quarters from a previous fire, Hoff, then a battalion chief, "spotted flames coming from a two-and-a-half-story apartment building. He called emergency services from his car, rushed into the building, and rescued four-year-old twin boys from a second-story bedroom."[38] This was several years after he rescued, unassisted, an elderly couple whose home was involved in the 1992 West Town Gas Explosions in Chicago's near North Side.

I have a distinct memory of Commissioner Hoff, as Chicago Fire Department training chief, teaching "Saving Our Own" to the Calumet Park Fire Department when I was a new paid-on-call member. While conducting a firefighter rescue drill, I was working on dragging a "downed firefighter" down a hallway by myself. I weighed about 140 pounds soaking wet at the time and was having a difficult time. Chief Hoff was sitting in a corner and very calmly said to me, "You're doing it right. You never give up. You may die right here with him, but you never give up." More than a decade later, I can picture that moment and hear those words. It is from men like Robert Hoff that I learned what a real sense of duty meant in the fire service.

I can point to literally dozens of examples of men and women whom I have watched acting courageously. Courage can show itself in many ways, but is often either physical courage or moral courage that is the underlying trait. Physical courage is easy to understand: risking yourself in the performance of your duty in a manner that could injure or kill you. Moral courage is stepping up and doing what is right without regard for being mocked or punished for your beliefs or actions. Physical courage is what inspires us forward to conduct that primary search when a parent standing on the front lawn says, "My baby is in that room!" Moral courage is doing what is right even if it isn't popular. Fire service warriors exhibit both of these types of courage on a daily basis.

We all acknowledge our duty every time we show up for a call, a shift, a drill, or an assignment. How deeply do you feel duty-bound to be a fire service warrior? Is it something that you would do for free because you believe in the mission and helping people? More than two-thirds of America's firefighters are volunteers or on-call personnel. They have recognized a way of fulfilling their duty to their neighbors. More than 300,000 men and women are able to make their trade as career firefighters. As a career firefighter myself, I recognize it is an amazing gift being able to make a living doing something this fulfilling, challenging, and honorable.

It is important to incorporate the virtues of honor, courage, and duty into our lives everyday. It is vital that while aspiring to the goal of being virtuous we acknowledge that none of us is perfect. There is a temptation to ascribe perfect behavior to people who seek to achieve lofty goals. That is why the media will bombard us with tales of Tiger Woods's affairs and print mug shots of Mel Gibson and Heather Locklear when they are arrested for DUI. None of us is perfect, and every one of us will come up short of our virtuous goals at some point.

Major Thomas Jarrett, US Army, has developed an amazing program for warriors that has been presented to thousands of US and Coalition Forces in Iraq. In his presentation *Warrior Resiliency and Thriving*, he makes the case that living a virtuous life is a choice. He highlights an important point, "Marriage vows, codes, and rules are *not* guarantees of perfect behavior, but covenants and goals!"[39]

I'm no fool; I know full well that any group of people who routinely risk their lives—firefighters, policemen, and soldiers—will at times engage in risk-taking behaviors away from work. We all need to blow off steam or decompress from the stress that comes with our jobs. The adage "work hard; play hard" comes to mind. Abraham Lincoln is quoted as saying, "It has been my experience that folks who have no vices have very few virtues."[40] While we may strive to lead a virtuous life, few of us are monks. We do not take vows of chastity and temperance. Our focus must remain on having the self-control to not overstep the boundaries of what is moral or legal. The saying "everything in moderation" says it all.

Remember that members of the public, who pay our salaries and pensions, or support our department through donations, hold us to a higher standard than the average person. Any time a public servant is involved in a run-in with the legal system, the first line in the newspaper will state his or her job. Does it really matter if "Firefighter Smith" was arrested for urinating in public, or that "Police Officer Jones" was pulled over for DUI? Yes, it does matter. The public trusts us to come into their homes. They trust us to behave with integrity. This is why we are held to a higher standard.

The firehouse of the late 20th and early 21st century is rooted in a paramilitary model. This has been in place for generations in the fire service, but in the years immediately after World War II, a culture of honor, courage, and duty thrived in the firehouse. The group of men who developed the modern fire service in the 1950s, 1960s, and 1970s were war veterans. They had fought in a world war or in the limited conflicts of Korea and Vietnam. They had been forged in a crucible that imbued them with certain qualities: integrity, loyalty, respect, selflessness, and many more.

We are seeing a change, however, as fewer and fewer of our members have a military background (I am one of those who did not serve in the military). As society has changed, there has been more of a focus on the needs and desires of each individual. Fewer people entering the fire service who are not veterans approach this job with a well-defined understanding of selflessness and a sense of duty.

The brothers and sisters who preceded us earned a reputation as the vigilant few who stand between our neighbors and the ravages of fire. To maintain that reputation, we must embrace a new model. It is a model rooted in the traditions of the fire service, all the way back to the vigils of ancient Rome and the lessons of warrior cultures throughout time. It is the model of the fire service warrior.

The Fire Service Warrior

The challenge in trying to articulate ideas other than the very technical elements of firefighting is expressing those ideas in a way that appeals to the broadest spectrum of people. It is my position that one way of doing that is to differentiate between those who approach firefighting as a vocation and a calling and those who see it as just a job. The ideal of a fire service warrior is a noble one. It is an acceptance of a duty and responsibility to humanity.

I hope this concept and the research that developed it will serve to help us understand the virtues and values that enable us to fulfill the vitally important calling. There may be resistance to thinking about our trade in this way. Despite our great bravado when in a group of peers, firefighters in general tend to downplay the hazards and challenges inherent in our work. I think that is understandable. If you really acknowledged just how hard this job can be and the risks involved, you would probably question your sanity. Being frank about the risks we face allows us to see why mastering the topics presented in this book are crucial.

If we think about it for a moment, these somewhat abstract ideas of virtues form the foundation of our character. The virtues of honor, courage, and duty should be present in everyone who dons a uniform with a Maltese Cross on the shoulder. The values of respect, integrity, loyalty, and justice form the load-bearing walls. The values of *selflessness*, *self-confidence*, and *self-control* form the roof that allows us to have a safe place for courage to grow. Once we have built the proverbial house of our virtues and values, we can furnish it with the knowledge, skills, and abilities necessary to fulfill our duty.

To fully embrace the role of the fire service warrior, we must each develop a set of skills that will allow us to attain the ready position. We must develop an understanding first of what challenges we face both physically and mentally. We must thoroughly understand the factors that come into play when we examine the physiological stress of firefighting and the psychology of running into a burning building. Understanding the metabolic effort entailed in firefighting, the effects of heat stress, and the physiological effects of fear will help us quantify the reality of what it takes to fight fires.

Once we truly understand the challenges we face, we can take up the topic of developing the requisite skills to not just survive in this environment, but to thrive in it. Our skills must include developing a work capacity sufficient to perform the work that we must do and developing a psychological resiliency that allows us to fulfill our duty and remain mentally and emotionally healthy. Finally, we must integrate our skills with a philosophy that guides us and shapes our understanding of what it means to be a fire service warrior who seeks to be in the ready position (fig. 1–5).

Fig. 1–5. Are you ready?

The calling of the warrior is not for everyone. It requires selflessness and self-control that are not encouraged in the 21st-century world. We live in a culture that promotes luxury as a right and hardships as something that are beneath us. Warriors, be they fire service warriors or our fellow warriors in the military or law enforcement know this isn't the case. Hardships are the reality of the world. Having the strength to accept the way of a warrior is an acceptance of the difficult and the dangerous. It is accepting a life of hardship, pain, and continual self-control.

Accepting a position that you know will place you in harm's way demands a certain heroic quality. This job will keep you from your family during holidays, and force you to confront physical and mental challenges. You will be wet, cold, and tired far more often than you want. You will likely be injured at some point in your career. These realities are reflected in Chief Crocker's quote at the beginning of the chapter. This is why true warriors have been revered as long as stories of their exploits have been recounted. In 500 BCE Heraclitus, the pre-Socratic philosopher said,

> *Of every 100 men, 10 should not even be here, 80 are nothing more than targets. Nine of them are real fighters. We are lucky to have them, they the battle make. Ah, but the one. One of them is a warrior and he will bring the others back.*

There is nothing nobler than that.

I know that each of us has already thought of someone who embodies the ideal of the fire service warrior. It is likely someone you have looked up to in the fire service. While I have made Chief Robert Hoff an example earlier in this chapter, I am proud to know hundreds of men and woman who live this life on a daily basis. My goal is to help you, the reader, see the need for a warrior culture in the fire service. I want to help you understand how the way of the fire service warrior leads you to the *ready position.*

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2

You Want Me to Do What?

Courage is resistance to fear, mastery of fear—not absence of fear.

—*Mark Twain*

Human beings have a natural apprehension when it comes to fire. This natural impulse to flee from an unrestrained fire is perfectly normal. It is a critical skill for survival. Fire is one of the most essential tools that humans possess, but it also has the potential to be one of the most destructive forces on the planet. The need to respect this creature is a cornerstone for being able to safely use fire in the myriad of ways that we do.

Parents recognize the need to teach children to avoid situations that may cause them harm. This training begins with essential survival skills such as "don't put anything in your mouth that isn't food" and "stay away from the stove—it's hot." When we are dealing with children who are younger than 7 years old, when the child's level of cognitive ability is still developing, most of this training takes the form of a conditioned response. If the child starts to approach the stove or campfire, they receive a sharp, loud reprimand from the parent and in many cases a slap on the hand. The idea is straightforward: Scare them and stop them in their tracks, or show them that going near the dangerous thing has painful consequences. However, this early, and often stern, method of imprinting a behavioral pattern also leads to some people developing an apprehension of fire. As we mature, we are taught how to use fire safely to cook and to heat our homes. Our early fear of fire is transformed into an understandable respect for fire and its power, but underneath that respect is the unchangeable imprint left on our three-year-old psyche by mom or dad slapping our hand when we reached for the stove.

Our fire service warriors must behave in an abnormal way when they choose to enter a building on fire (fig. 2–1). Choosing to disregard the normal psychological response to fire by entering a burning structure causes an understandable stress reaction even in an experienced firefighter. To operate safely and effectively on the fireground, we must understand the psychological and physiological reactions that affect our performance and how to manage our stress responses.

This is where we will start to pour the foundation on which the rest of our knowledge, skills, and ability rest. Understanding the various psychological and physiological factors that affect our ability to operate on the fireground allows us to prepare for those challenges. Examining some of the science may seem a bit complicated at first. I'm not a doctor; I'm a firefighter, so I think I've captured just the important information that can help us understand how our bodies react and why we respond in certain ways. That understanding will help you to develop the skills to control your body's responses.

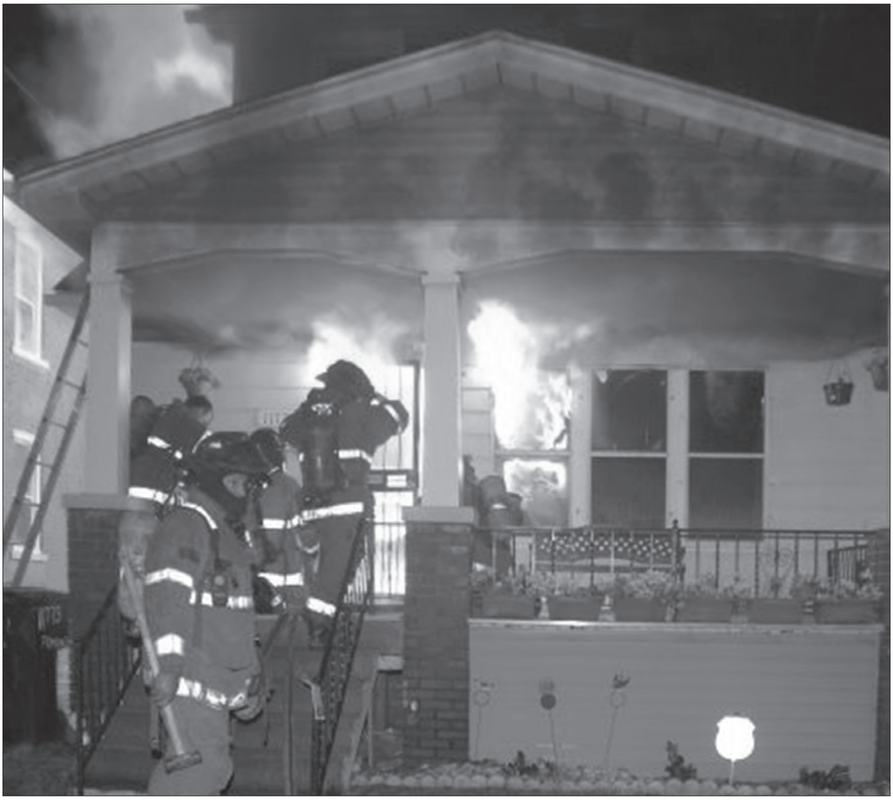


Fig. 2–1. You want me to do what?

Firefighting requires that an individual willingly enter an environment that poses a threat to health and welfare. As fire service warriors in that environment, we engage in strenuous physical activity, while being hampered by the very protective clothing that is necessary to keep us from being burned, and we must disregard the undercurrent of fear that tells us to flee. The fire service warrior must physically perform at the level of a Navy SEAL (Sea, Air, and Land)[1] while maintaining situational awareness, anticipating the next steps to complete the assigned task, and providing progress reports to supervisors.

Firefighting takes a toll on all firefighters, both physically and psychologically. Throughout the late 1990s and the early part of the 21st century to date, a significant body of research has been conducted on the physiological effects of firefighting. Comprehensive studies with multiple parameters have been conducted by Dr. Denise Smith and Dr. Steve Petruzzello, colleagues of mine at the Illinois Fire Service Institute. Their research continues, with the help of Dr. Gavin Horn and many others. This critical research is adding to our understanding of how the human body reacts to the effects of firefighting. I think you can agree that if we are going to send people into enclosed buildings that are on fire, it would be negligent of us not to try to fully understand what happens to people in that environment. Studying the physiological effects of firefighting is challenging because of the many variables that have to be considered: Firefighters range in age from 18 to 70 years; not every firefighter starts with a common level of physical fitness; differences in heredity and upbringing play a factor in how the body will respond to stresses that are placed on it.

Physiology

To understand the effects firefighting has on our physiology and psychology, we must have a basic knowledge of our anatomy and physiology. The way our bodies respond to physical exertion, anxiety, zero-visibility conditions, and heat stress all affect our physical health and our cognitive functioning. Before there was a body of research and understanding of the physical impact of firefighting on firefighters, individuals sorted this process out in a more organic way. If they couldn't stand the heat, they quit, or they found a place to hide. The philosophy of the firehouse used to be "suck it up." I am 100% in favor of this approach to the hard work of firefighting provided it is done with an educated understanding of the job. Fighting fire is difficult work; it poses physical, mental, and emotional challenges. If we advocate an uneducated philosophy of bravado, we risk losing quality people. Our objective must be to recruit and select quality individuals whom we can train to master the fireground environment. By developing an understanding of the responses humans have to the stress of the fireground, we can help all of our members achieve the ready position.

Knowledge is power, or as the public service announcements at the end of *G.I. Joe* cartoons say, "and knowing is half the battle." Knowing *is* half the battle. By having a thorough understanding of the physiological and psychological challenges that fire service warriors face, we can develop effective training programs. A more complete knowledge of these challenges should increase our likelihood of surviving and help reduce fireground injuries. There are people who argue that any physical fitness regime or skill-based training is good. I disagree. If we fail to perform a thorough needs assessment of the physical abilities necessary for fighting fires, then the efforts our people put into the weight room or the training ground may be wasted. If individual firefighters do not see improvement in their skill set, ability, or capacity to perform on the fireground, they will become disheartened. If we do not develop good form both in exercise and in the execution of our skills, we can develop a muscle memory that can hinder our abilities. The old saying, "perfect practice makes for perfect performance," is an accurate one.

Understanding some key elements of anatomy and physiology will show why the oft-heard military maxim, "train the way you fight," is critical. To that end, I discuss these systems roughly in the order that they affect us. The role of the nervous system comes first, because sympathetic nervous system (SNS) primacy can affect anyone regardless of their function on the fireground. Next I tackle the effects of metabolic effort. The role of heat stress becomes significant once we put on personal protective equipment (PPE) and as we assume roles that will bring us inside the burning structure. Finally, I look at the role the vestibular system plays on spatial orientation with an emphasis on zero-visibility environments.

The nervous system

An understanding of the physiological and psychological reactions we confront must start with a brief understanding of our nervous system. Every person's nervous system is composed of two main components: the somatic nervous system, which is responsible for the actions of our voluntary muscular movements, and the autonomic nervous system, which is responsible for all of the functions that our body needs to perform automatically. It is primarily the role of the autonomic nervous system that we are concerned with when talking about preparing for the challenges of the fireground.

The autonomic nervous system functions through the sympathetic nervous system (SNS) and the parasympathetic nervous system (PNS). These two systems send signals to the organs, muscles, and brain directing the actions for the muscles to take, and these systems work in opposite directions. The SNS is responsible for increasing heart and respiratory rate, diverting blood flow away from the skin through constricting blood vessels, and performing other actions that are considered a part of our body's fight response. The SNS is the functional area of the nervous system that engages when one is threatened. The PNS has the opposite effect. The PNS slows the heart rate when the need to move large quantities of oxygen has been reduced, and it moderates digestion along with bowel and bladder control. The PNS is the body in a resting state.

During high-stress situations like combat or firefighting, the body switches its resources from the PNS to the SNS. The pupils dilate to enhance vision, heart rate increases to move a greater quantity of oxygen to the large muscles needed to fight or flee, and the peripheral circulatory system contracts, so that if you are cut, you will bleed less. The downside to this sudden switch is that things such as bowel and bladder control can be quickly lost. You can urinate or defecate right on the spot. This is something that is often misunderstood, and something that is not talked about often, but it does happen. In *The American Soldier*, a study of the actions of soldiers in World War II, one quarter of all soldiers reported the loss of bowel or bladder control in combat. Responders who survived the September 11, 2001, attacks on the World Trade Center reported numerous cases of loss of bowel and bladder control.[2] I am bringing this up because it is something that we need to understand. It is decidedly not macho to tell someone that you wet yourself while fighting a fire. Imagine you are a young firefighter on your very first structure fire, ascending a flight of stairs with the nozzle. You reach the landing and turn into the hallway to begin attacking the fire. You are met by a wall of flame and heat. Your SNS has been switched on from the initial dispatch because you recognized that you could be in a threatening situation. When you are confronted with this high-threat environment, you may experience anxiety bordering on overwhelming fear, because you are acting contrary to what your underlying psychology tells you is normal. Suddenly, as you come to the top of the stairs, you find yourself in a situation that your body perceives as being immediately dangerous to life and health (IDLH). A switch is thrown in your nervous system, and everything goes from alert to panic mode. You may freeze up or become submissive. If you urinate, or even defecate, it is actually a perfectly understandable reaction. You aren't going to feel that way, though, if you haven't been taught that it is a possibility. Instead, you would react with shame and discomfort. You may even decide that you shouldn't be a firefighter, because "I can't hack it," or you may become timid and less likely to develop an appropriate level of aggressiveness. I'm not talking about coddling people who do not have the requisite courage, stamina, or strength to be firefighters. This job isn't for everyone. However, we do not want to label someone a coward who simply has not been prepared for what the body is going to do when it feels threatened. Loyalty was among the values stated in chapter 1. Being loyal to our apprentice warriors includes training them to overcome this normal reaction to fear.

The full measure of the effects of the SNS will be addressed when we discuss the psychology of firefighting. It is difficult to separate the effects of fear into distinctly physiological versus psychological functions. For the moment, it is only necessary that we acknowledge that the nervous system plays a role in how we respond on the fireground.

Metabolic effort

Fighting fire is a strenuous, physically demanding task. This conclusion is consistently repeated across several studies. During firefighting operations, firefighters reach their maximal, or near maximal, heart rate. Maximum heart rate is measured by subtracting an individual's age from 220 (e.g., the maximum heart rate for a 31-year-old is 220 − 31 = 189 beats per minute [bpm]). Studies evaluating the heart rate of firefighters performing fireground operations during interior structural firefighting operations show that heart rates between 164 and 183 bpm are common.[3] In other words, a 31-year-old firefighter will be functioning at between 86.8% and 97% of his or her maximum heart rate while operating inside a structure fire. This level of physical exertion has multiple effects on the individual firefighter.

First, the firefighter is increasing the level of thermal stress on the body because of the metabolic action required to perform the required actions. This metabolic stress can be measured by the metabolic equivalent of task (MET). One MET is the amount of energy/oxygen that your body uses while sitting quietly. Based on studies by Barbara Ainsworth of the University of South Carolina, firefighters can expend energy at a level of 12 METs while conducting firefighting operations. This is the same level of energy expenditure seen in Navy SEALs and professional boxers. As a comparison, your body is working at roughly 13 METs if you are running 7.5 miles per hour (an 8-minute mile) at a 1% incline.

This level of effort has been acknowledged by fire service organizations and has been cited as a contributing factor in firefighter line of duty deaths (LODDs). The National Institute for Occupational Safety and Health's (NIOSH) Fire Fighter Fatality Investigation and Prevention Program (FFFIP) Fatality Report F2004–07, which details the LODD of a Connecticut fire chief, made several recommendations, including to phase in the recommendations of National Fire Protection Association (NFPA) Standard 1582, Standard on Comprehensive Occupational Medical Programs for Fire Departments, regarding evaluation of cardiovascular fitness for duty. This standard stipulates the firefighter's ability to exercise to at least 12 METs without symptoms or electrocardiographic changes.[4]

The studies of Smith and Petruzzello have incorporated an evaluation of rate of perceived exertion (RPE) based on the Borg Scale. These studies examine the RPE based on physiological and psychophysical factors, but they do not take into consideration the purely psychological aspects. Based on their research, we can see that firefighters will rate their exertion as being "hard," an RPE that we would expect to see for a person with a heart rate of 150 bpm, yet the recorded heart rates recorded should have elicited a response of "very hard" to "extremely hard." There is no clear clinical explanation for this variation. A component that must be considered is the subjective nature of measuring effort based on the Borg Scale; it is all in the mind of the individual what "hard" means. We also need to consider that the thermal stress, dehydration, and (previously discussed) cardiac compromise may affect the ability of the individual responder to accurately assess the level of exertion. A final consideration must also be an intentional effort to report a lower RPE based on the individual's need to seem "tough enough."

These physiological and psychophysical effects can be seen as having an effect on cognitive function as well. In Smith and Petruzzello's 1998 study, subjects were assessed for their cognitive function after each of their three trials, based on their response time and degree of accuracy using a Continuous Performance Test. Response time decreased across all three trials. The authors' conclusion was that this could be attributed to the ability for neural signals to be transmitted more quickly across the warmed nervous system. When the nervous system gets warmed up, it transmits information more quickly than if it is cold. The Continuous Performance Test required the subjects to determine if a displayed number was a 0 or 9, or a number between 1 and 8. While this does provide some understanding of the basic response time of the nervous system, it is not an accurate predictor of the individual's ability to analyze and respond to multiple sensory inputs while functioning in the fire environment. Even the US Fire Administration acknowledges this: "The physical and mental demands associated with firefighting and other emergency operations exceed those of virtually any other occupation."[5]

It should be apparent at this point that firefighting, while "hard work," requires a physical capacity that may not have been previously taken under consideration. The fire service warrior must strive to maintain the fitness level of an elite athlete to be ideally prepared for the inevitable challenges that come with being a warrior.

Heat stress

Firefighters must contend with an increase in thermal stress on the body from the elevated temperatures found inside a structure. Ambient air temperatures can rise above 449°F inside a burning building.[6] At this level of ambient temperature, firefighters cannot survive without their PPE and self-contained breathing apparatus (SCBA).

At the same time, firefighters must contend with the limitations placed on the body by the very PPE that they need to survive in the building. NFPA 1500 specifies that all firefighters shall use coat, pants, boots, gloves, helmet, and protective hood in conjunction with their SCBA. These elements of protective gear—fire-resistant materials and layered structures—reduce the risk of firefighters being burned. The unwanted effect of these garments is that firefighters are less able to relieve heat stress through perspiration, because the insulating properties that prevent heat from burning them also trap their radiated body heat.

All of these aspects have been quantified through studies of the physiology of firefighting. We can use the accepted standard of 98.6°F as the normal human body temperature. One study has shown that on average the tympanic temperature (the body temperature measured by an ear thermometer) of firefighters completing 16 minutes of firefighting activity was elevated to 104.1°F, after operating in an atmosphere varying between 170.1°F and 199.9°F.[7] Other studies have shown that more reasonable core temperature increases of between 1.0°F and 2.5°F can be expected, at least over the short duration of controlled activity seen in the studies.[8] The reason for these variations in data should be fairly obvious: There is no textbook human being. Every study on the way people respond has to accept that fact that human beings are very unique in their capacities, heritage, and individual tolerance. Regardless of these variations, we can see across all of the published research that firefighters experience an increase in body core temperature. Increases in core temperature can have profound physiological effects.

Two noteworthy physiological effects that have been observed are reduction of the heart's stroke volume (the volume of blood the heart can pump in one contraction) and dilation of blood vessels closest to the skin. The body attempts to shed the buildup of heat through sweating. Unfortunately, the fire service warrior is wrapped in a bunker gear ensemble that prevents the dissipation of heat. As core temperature rises, the body fights harder to cool down by further increasing vascular dilation. These two factors can lead to a dangerous drop in blood pressure. This has potentially significant consequences, particularly the risk of a sudden cardiac compromise. A number of the firefighter LODDs that fall in the Stress/Exertion category are a result of this cardiac compromise.

There are a host of factors that have been identified as contributing to the risk of cardiac compromise, including overall medical health, level of physical fitness, and level of hydration. It is important to recognize that you have control over some elements of all of these factors. While you do not get to choose whether you are diabetic or have a genetic disposition to cardiac problems, you can control some of the other common risk factors for a heart attack. Do you smoke? Are you overweight? Do you exercise? Is your daily hydration regime made up exclusively of soda or coffee? These are all factors that we can control as individuals that have a direct impact on our ability to physiologically cope with the effects of heat stress.

A firefighter equipped with the common 30-minute SCBA cylinder with 45 cubic feet of air at 4,500 psi should be able to perform 16 minutes of work prior to exiting the fire building. This firefighter will exit the building with a body core temperature between 100°F and 102°F (and perhaps as high as 104°F) and a pulse rate of approximately 175 bpm. Interestingly, research has shown that despite this level of physical exertion, firefighters do not show a corresponding psychophysical effect. In other words we do not feel as bad as would be expected.

However, just because you do not feel terrible does not mean that you are not placing significant stress on your body. This is why rehabilitation is so important. We are trying to give the body a chance to recover. Most folks in the fire service have done some kind of weight training. It is a common practice to incorporate rest periods between sets of exercise repetitions to give your muscles a chance to rest and prepare for the next round of work. Why is it that the same group of people who would not dare to start squatting a third set of 300-pound weights 30 seconds early feel compelled to try to dodge going to rehab at a fire scene?

The vestibular system

People are naturally visual creatures. We are designed to interact with the world around us through visual inputs. That's why blindness is considered a disability and is recognized in the Americans with Disabilities Act. On the fireground we often find ourselves in limited or zero-visibility conditions. We willingly enter an environment that forces us to accept blindness. The result is an understandable deficiency in our ability to operate and gather information.

The vestibular system gives us information about where we are going and our orientation to the world around us.[9] The vestibular system is a series of three semicircular canals located in the inner ear that senses the movement of fluid to gauge the relative position of the body in the horizontal, vertical, and sagittal (side to side) planes.[10] This system is a critical component in our ability to maintain situational awareness. "The vestibular system enables a person to determine body orientation, sense the direction and speed of movement and maintain balance. When there is limited visual input, as is common in many flight situations, the vestibular sense becomes important for gathering information."[11] Like pilots flying under instrument conditions, fire service warriors experience limited visual inputs; but unlike pilots, they do not have a suite of instruments and sensors to help guide them.

The vestibular system, vision, and muscle inputs all feed information into the brain so that we are able to maintain our spatial orientation, stabilize the gaze of the eyes during movement of the head, and maintain posture and balance. It should be obvious that when we enter a burning building filled with the toxic products of combustion that we lose the visual inputs that our brain relies upon to orient ourselves in the environment. That is why timely and effective ventilation is so critical! Without thorough ventilation, a smoky environment will continue to develop, which increases the likelihood of firefighter disorientation.

Disorientation brought about by limited visibility causes a deficit in our ability to maintain a clear mental map of where we are in relation to a safe path of egress. Studies of the vestibular system in rats have shown that "repeated 'disorientation' of rats disrupted spatial learning in an appetitive radial-arm maze task," and that "repeated disorientation [has] disrupted the rats' ability to form a representation of the goal location with respect to extramaze cues."[12] Much like the rats in a maze, we firefighters are often subjected to environments about which we have little foreknowledge. We are not provided with a preplan for every residential occupancy that we have to enter to fight a structure fire. We have to predict a satisfactory primary and secondary egress based on our knowledge of building construction and the current conditions. Once we enter the enclosed building, our visual cues become impaired by the smoke conditions, and our vestibular system takes over the primary function of maintaining spatial orientation (fig. 2–2).

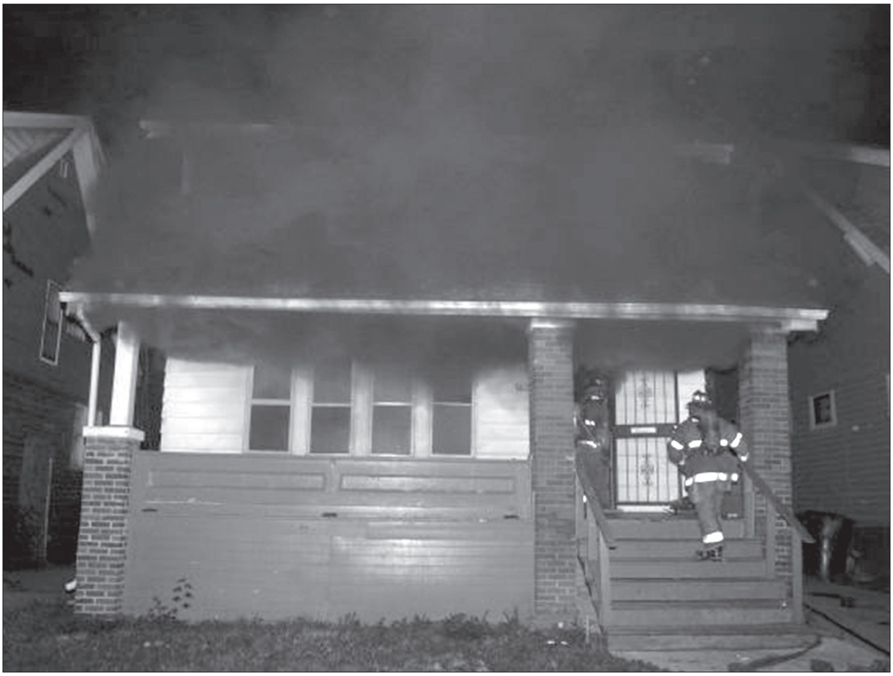


Fig. 2–2. Lack of ventilation decreases visibility.

Prolonged zero-visibility conditions have been shown to cause vestibular illusions in pilots.[13] From day one in the fire service, it is often repeated that using good search techniques, including knowing how many doors you have passed and what hand should be on the wall, are supposed to help keep you from getting "all turned around"—which another way of saying disoriented. It is likely that the same zero-visibility conditions that cause pilots to experience vestibular illusions may have a similar effect on the fireground. Getting turned around can cause the vestibular system to give false or misleading inputs to the spatial orientation centers of the brain. For example, we may doubt our mental picture of which way is out and start to rely on the incorrect cues our body is giving us. Much like the pilot who incorrectly senses that the wings are level, ignores the artificial horizon that is factually showing that the plane is rolling, chooses not to adjust the aircraft, and thus unintentionally flies into the water, the firefighter who trusts a false sense to follow the wall in the opposite direction than the search plan indicates may become lost and ultimately end up as a fireground fatality.

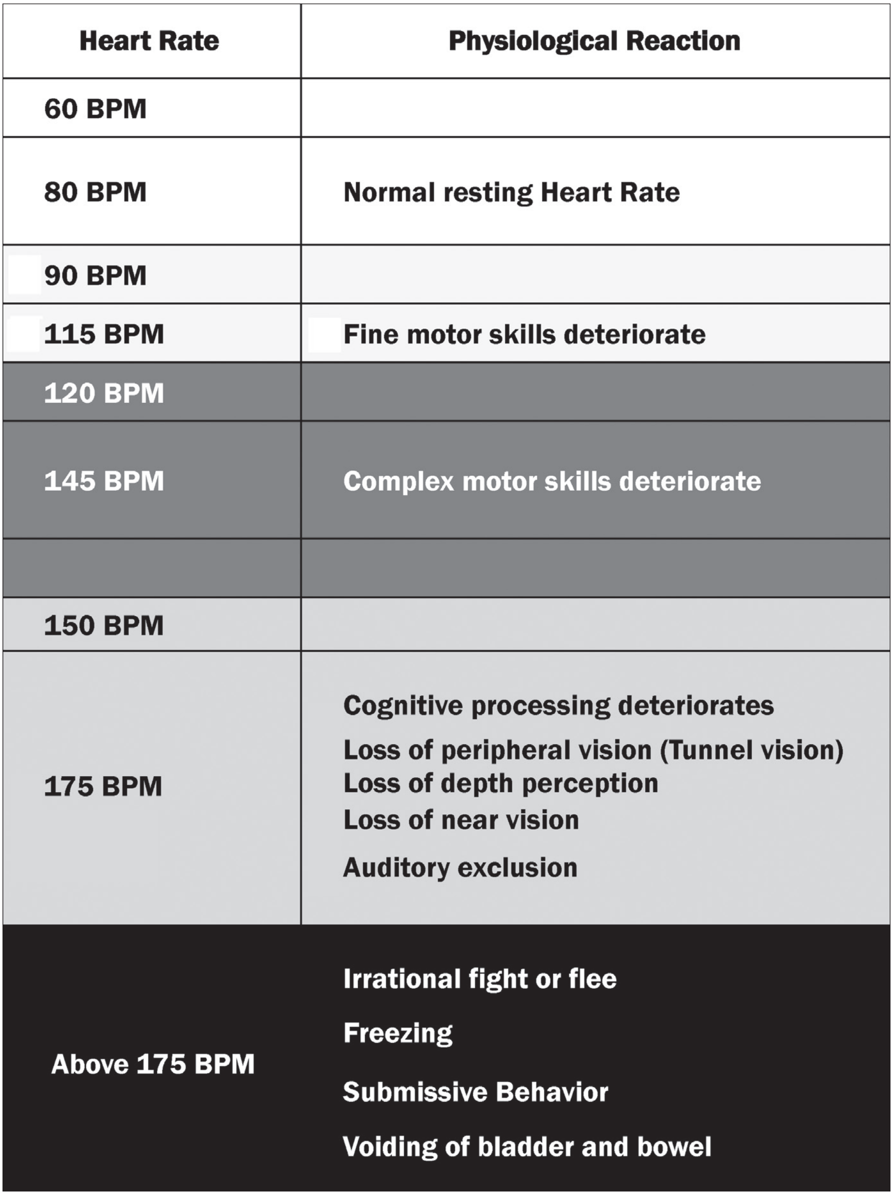
There is no way to train the vestibular system not to create illusions when the brain is deprived of visual inputs. Understanding the way our brain interprets data regarding spatial orientation can help us recognize that vestibular illusions are occurring. If we have an understanding of the normal way our body will react when stressed, we can be prepared to counteract that sense when it is giving us false signals. Officers and instructors need to train firefighters with realistic scenarios so they can experience vestibular illusions. This training will illustrate, in a way that reading the manual cannot do, how having a solid search plan is vital to maintaining situational awareness. Through realistic training we can condition a response that reaffirms the operational plan and allows our personnel to ignore illusory inputs and rely on cognitive skills. Our training must force us to develop good search techniques, including the use of thermal imaging if available, and encourage prompt, effective ventilation to help give our people back the visual inputs that are critical to staying oriented in the building.

Psychology

People assume that firefighters are not afraid of running into burning buildings. My experience has been to the contrary. When new candidates start in the fire service, they have an understandable apprehension of what they are going to be called upon to do. We are conditioned since infancy to have a fear of fire. That fear needs to be controlled, however, if we expect our firefighters to perform their duty. In order to control our psychological responses, we first need to understand the effect that fear and anxiety have on us.

The psychological responses of firefighters to the environment in a fireground or on another emergency call is an aspect of firefighting that has not received a great deal of attention from researchers. We can use the work of researchers like Lt. Col. Dave Grossman, Bruce Siddle, and Loren Christensen on the psychology of those in combat to develop an understanding of some of the effects of psychological stress that firefighters routinely face. The responses by the nervous system to the threats of the fireground and a firefight are similar. Our brains must process the threat information, and we must maintain our control over our SNS.

For firefighters, the single most important side effect of the SNS taking primacy is increased heart rate. Emergencies are not scheduled events. When the alarm bell rings, your heart rate begins to increase. This is caused by the body responding to perceived stress by releasing adrenaline into the blood stream. Controlling that initial adrenaline dump is critical. The effects of an increasing heart rate because of anxiety have been documented by Lt. Col. Dave Grossman and Bruce Siddle. There are five levels of anxiety that we can find ourselves in at any given time (fig. 2–3).



Heart Rate	Physiological Reaction
60 BPM	
80 BPM	Normal resting Heart Rate
90 BPM	
115 BPM	Fine motor skills deteriorate
120 BPM	
145 BPM	Complex motor skills deteriorate
150 BPM	
175 BPM	Cognitive processing deteriorates Loss of peripheral vision (Tunnel vision) Loss of depth perception Loss of near vision Auditory exclusion
Above 175 BPM	Irrational fight or flee Freezing Submissive Behavior Voiding of bladder and bowel

Fig. 2–3. The effects of an anxiety-induced increase in heart rate

The white zone is the level of anxiety and capacity experienced during typical resting mode. We progress from white to yellow as our heart rate begins to climb toward 115 bpm. At this stage fine motor control begins to deteriorate. For fire service warriors, the loss of fine motor control is not critical. We do not operate in the same world as pilots where we are expected to pick a single switch out of a cluster during high-stress moments. As heart rate nears 120 bpm, we enter the red zone, where a loss of gross motor control begins to occur. This is more important on the fireground. We use large muscle groups when pulling ceilings, dragging hoselines, and swinging axes. Entering the gray zone, we are moving into a panic mode: cognitive ability, vision, and auditory senses all degrade quickly. If the heart rate exceeds 175 bpm, the psyche and the body essentially give up, and either flee or are unable to react. A firefighter who is already fearful and anxious can expect the heart rate to climb even further. As the heart rate increases, the untrained firefighter will begin to feel as though the body is malfunctioning. This will further add to the anxiety reaction.

It is important to remember that these effects are only for stress-induced heart rate increases; they do not apply to heart rate increases due to physical activity. We will see that the effect of an elevated heart rate from exertion can have an effect on our ability to control the onset of anxiety reactions. Also, the heart rates should not be taken as concrete numbers, but rather guidelines for understanding the body's reactions. As always, when we are dealing with people, there is individual variation.

Fire service warriors work in an environment where they will face an increase in heart rate from both exertion and anxiety. There is no conclusive study that has analyzed the impact of the combined effect of heart rate increase from exertion and a sudden increase in heart rate due to SNS stimulation. Based on the previously mentioned studies about physiology, it is reasonable to expect that if you are an experienced firefighter conducting interior operations, nearing the end of your working time on your first air bottle, you will have a heart rate somewhere in the range of 160 to 180 bpm. You will not likely be experiencing any significant psychological challenges or loss of cognitive function that would impair your ability to maintain situation awareness. You are in the yellow zone cognitively, and your warmed nervous system is processing information efficiently. However, if conditions suddenly and unexpectedly deteriorate, you may rapidly go from being calm and collected in the yellow zone to the black zone without any warning. It is not a huge leap for your heart rate to go from 160 to 175 bpm if you experience a sudden change in conditions.

There is research that provides us with an insight into what happens when firefighters become disoriented. The *US Firefighter Disorientation Study* examines the role that disorientation plays in firefighter fatalities.[14] In 100% of the cases studied, conditions changed suddenly from manageable for aggressive interior operations to prolonged periods of zero-visibility conditions. We can expect that those rapid changes would bring about an understandable anxiety reaction. A flood of adrenaline along with a quick shift from feeling in control of the situation to being overwhelmed by the conditions would lead to the sudden surge of the SNS reaction. Couple that SNS surge with a near maximal heart rate, and our firefighter is going to move into the black zone and have a nearly overwhelming flight response. The dilemma is that when the flight response kicks in, cognitive function shuts down. We recognize that we are scared and that our ability to think is compromised. So what happens? Our heart rate increases further because our nervous system realizes that we are not responding to the situation, and we can become caught in an escalating cycle of anxiety. Rather than calmly thinking, "I need to get my company together and follow this hoseline out," the survival brain centers kick in, and we will only do what we have practiced before. If we have not trained on maintaining company integrity and situational awareness under rapidly deteriorating conditions, panic will take over, we will become disoriented, and those combined forces could result in a fatality.

Our goal as fire service warriors must be to develop a training program and a philosophy that will help us stay in the yellow zone, even under those circumstances where a typical firefighter would be expected to suddenly jump into the gray or black zones. It requires a personal commitment to understanding yourself, your mind, and your body, and training yourself and your brothers and sisters to have the will to survive. It means training mentally and physically to be in the ready position.

Conquering the fight or flight response

To manage your SNS reactions during high-risk situations, you must prepare for those situations. Gordon Graham, the sponsor of the popular website *www.firefighterclosecalls.com*, author, and speaker, talks about the kind of circumstances that lead to injuries and fatalities in his presentation "Why Things Go Right—Why Things Go Wrong."

It is the high-risk–low-frequency events that are most likely to give us difficulty. It is these same kinds of events that are likely to lead to a rapid activation of the SNS reactions. Much of this response comes back to self-confidence.

Bruce Siddle also takes up this topic in his book *Sharpening the Warrior's Edge*.[15]

> *As a psychological state, anxiety is common when a student perceives a lack of control or confidence. Anxiety continues to increase when the situational demands escalate and the time needed to manage the situation decreases. Therefore, training exercises must be developed to decrease anxiety for predictable field events and increase situational confidence.*[16]

Developing survival skills has received quite a bit of attention from our brother and sister warriors in the military and law enforcement communities. Like us, they can find themselves in a life-threatening situation with little or no warning. We have already drawn a comparison between the physical workload of firefighting and that of a Navy SEAL; let's see if we can learn some lessons from a SEAL model of survival skill training as well.

Contact front!

The Navy SEALs are recognized as an elite unit, and their role within the US Special Operations Command requires that they often operate in high-threat environments, where they are likely to be outnumbered by hostile aggressors. Any SEALs who are patrolling the streets of Iraq, the mountains of Afghanistan, or one of the shadowy corners of the world that military warriors frequent are aware of the possibility of coming under attack. SEALs operate in condition yellow, alert and ready to respond. If they begin to take small arms fire from one or two enemy fighters, they have time to recognize and respond to the threat. They should be able to maintain themselves in the yellow zone. However, if their patrol is suddenly hit by an improvised explosive device, or ambushed by a numerically superior force, chances are, if they were untrained or ill prepared, they would rapidly shift into condition gray or black. This is a pretty common sense thing, right? When people start shooting at you, you get scared. The way the SEALs prepare for those sudden life-threatening encounters is through immediate action drills (IADs). During an IAD the entire platoon responds immediately by using one of several tactics that have been practiced hundreds of times, until the response has become automatic. There is no need for the cognitive function to operate at 100%, because the response has become conditioned.

One example is the leap-frog IAD. The leap-frog is a way to respond to an ambush where the SEALs will have to break contact. To keep from being overrun, it is imperative that a constant volume of firepower is maintained. When contact with the enemy is initiated, the SEALs know to immediately turn to face the direction of the threat and engage while seeking a position of cover. Then the platoon officer will yell out that the SEALs are to execute a leap-frog maneuver. The order will go out, "Ones up!" At this point, one squad of SEALs (generally eight operators) will rise and move away from the direction of the enemy contact to a position of cover, while their mates keep firing. Once the ones reach a point of cover, the leader will call out, "Ones down!" The squad that had been maneuvering will assume a firing position and begin to engage the enemy. With this, the second group will rise up, on the order "Twos up," and begin to retreat through the firing position of the ones. This movement is occurring with the ones firing live ammunition in the direction of the enemy and the twos in-between. The twos continue until they have leap-frogged past the ones, assumed a new position, and begun firing past the ones. Obviously, with all these people moving and shooting, and with friendly forces in-between the shooters and the enemy, there is the potential for disaster. The initial ambush is going to push the SEAL operator into a state of anxiety, as anyone who has ever been shot at can attest to. A normal person's heart rate would jump right into the black. The IAD gives the SEAL operator the tools to respond instantly, with the psyche in the red or gray range, until the cognitive reasoning kicks in. The way the SEALs master these skills is by constant repetition in a crawl, then walk, then run fashion. The skills have to become instinctual, just like those a pilot must master to deal with an in-flight emergency.

"We're going to be in the Hudson"

On January 15, 2009, US Airways Flight 1549 took off from LaGuardia Airport in New York, flew into a flock of birds, lost the power in both engines, and made a "dead-stick" landing in the Hudson River. The flight was piloted by Captain Chesley "Sully" Sullenberger, a veteran pilot with more than 20 years experience of commercial flying and previous experience as a fighter pilot with the US Air Force. After losing both engines, Captain Sully managed to land the aircraft, an Airbus A320, with 155 passengers and crew aboard, in the Hudson River. The story of Sully's amazing feat played out live on all the news channels. Sully became an instant hero because of not only his ability but also his demeanor.

After the accident, the US Federal Aviation Administration (FAA) conducted a complete investigation and eventually released the full transcripts and audio recordings between US Airways Flight 1549 (Cactus 1549 in the transcript) and Air Traffic Control.[17] The flight checked in with LaGuardia Departure Control at 15:25:51 local time. At 15:27:36 the radio transmission, "ah this is uh cactus 1539 hit birds we lost thrust in both engines we're turning back towards LaGuardia," is recorded by Air Traffic Control.[18] At 15:29:28 local, the final radio transmission from the flight was recorded, "We're going to be in the Hudson."

While reading the transcripts is interesting, listening to the tone that Captain Sullenberger maintained is amazing. At no point in time does he sound anxious, upset, nervous, or any different from the other pilots making routine radio contact with LaGuardia Departure Control. Over the course of 1 minute, 52 seconds, Sully was going through his emergency procedures, attempting to restart his engines, contacting Air Traffic Control, identifying alternative landing sites in New Jersey, and managing the activity in the cockpit. He never lost his cool. How is this possible? Practice.

Military and airline pilots spend countless hours in simulators practicing what to do when the unthinkable happens. The idea of this training is to give them a set of actions and procedures to fall back on when their SNS starts to kick in. They have procedure and muscle memory to rely on to get them through the initial wave of shock and fear. They recognize that there is no time to get your emotions under control when a sudden event occurs in flight—you have to respond immediately.

Even Sully, in his interview with Katie Couric on *60 Minutes*, on February 8, 2009, said, “It was the worst, sickening, pit-of-your-stomach, falling-through-the-floor feeling I’ve ever felt in my life.”[19] Couric then asked, “Did you think, ‘How are we going to get ourselves out of this?’” Sully replied, “No. My initial reaction was one of disbelief.” His initial reaction was one of disbelief and fear, and yet he managed to land an airliner with 154 other people on board in the middle of a river in New York City. That is the kind of self-confidence and self-control we want to develop in our people in the fire service.

Don’t panic

By conducting challenging scenario training, we can develop the ability to respond to unexpected situations that could cause anxiety reactions. During training, use props that will cause a firefighter to suddenly fall through a floor or have a piece of ceiling fall on a trainee. The US Fire Administration’s program, *Calling the Mayday: Hands-On Training for Firefighters*, is a great resource for safely teaching your firefighters how to deal with potentially disorienting situations. Firefighters can master the ability to control the fight or flight response through training and experience.

While it may be interesting to understand how the SNS controls the fight or flight response, what we must do is develop the skills to control that response. Training is essential to be able to recognize and identify when the body has started to go into panic mode and develop a conditioned response that will kick in to regain control of the heart rate before entering the black zone. Conquering the fight-or-flight response requires conscious effort.

Take the time to train yourself before you go out on a call. I have experienced the freezing associated with being in the black zone before. When I was going through my recruit academy as an eager 20-year-old, I felt pretty confident in my skills. I had spent time hanging out in firehouses, and I knew how to use a SCBA. We were nearing the end of our program and had finally gotten to tower drills in smoke conditions, really minor stuff—a burn barrel with some wet straw in it. I was the lead firefighter for my group of five students. We turned into a stairwell to head to an upper floor, and I was enveloped in blackness. I had never been anywhere that was so dark. I had absolutely no visibility. I put my hand on my facepiece and could not see my hand. My primitive part of my brain reacted, and I got panicky. I froze. I was on my hands and knees, supposedly leading this group of people, and I just didn't move at all. I finally told myself to take a few deep breaths, that I was in a tower, the instructor was just a step or two away, and everything was okay. I got the group moving and completed the evolution, but it was an experience that stuck with me. I wondered if I would freeze up on a real call, and I knew that if I did, it could get me killed. I have used that experience to help guide me as I practice developing a warrior mind-set, and I keep it in the back of my head when I'm teaching.

The single most important element of conditioning yourself to control your fight or flight response is summed up in Douglas Adams' *The Hitchhiker's Guide to the Galaxy*: "Don't panic!" It may seem like a simple thing, but being conscious of how you are responding to the conditions around you sets the stage for being in control of your SNS responses. If you are not conscious of how you are beginning to respond, then it is inevitable that your heart rate is going to start increasing before you are even aware of it. You will begin to move from condition yellow to red to gray with out even realizing it. Making the effort to stay aware of how your body is responding sets the stage for controlling your SNS responses. The question is, how do you develop this kind of skill set? We each come to the kitchen table in the morning with different levels of self-awareness. We see it in ourselves and our brothers and sisters. Some folks are aware of everything they say before they say it; others are constantly putting their foot in their mouth. We all know that brother or sister firefighter who, when the company officer asks him, "What were you thinking?" replies, "Nothing." They are not lying, nor are they being deceitful; people often act without making a conscious decision about what they are about to do or say.

Developing the ability to be aware of your responses starts with looking at yourself and asking, "What kind of person am I?" Are you a cool, steady operator on the fireground, or are you prone to getting nervous? Do you know your job well enough to do what is asked of you safely, efficiently, and effectively, or do you need to work on the fundamentals? Do you know building construction, fire behavior, and your SCBA well enough to keep yourself alive? Developing that understanding takes self-reflection and honesty. It requires that we embrace the values of self-control and self-confidence described in chapter 1. You need to start there. Once you can honestly understand yourself, then you can begin working on how to control those primal survival responses that spring from the primitive part of the brain and trigger your SNS responses. You can implement a personal philosophy that encourages the virtues of honor, courage, and duty. All of these skills can be said to be our foundations, and they form our personal condition.

Rehearsals

In the fire service we do not have simulators, as airline and fighter pilots do. We are seeing the deployment of driving and command simulators, however these do not mimic the operations of the individual of the fireground. We do have the training tower, but how often are you able to devote a day to the training tower? The reality of the day-to-day work of the fire department is that we have a host of responsibilities to attend to that may interfere with our ability to spend time on the drill ground. We have the ability to mentally rehearse what can occur and hone our responses. Think about the situations you may find yourself in. Think about your strengths and weaknesses. Every one of us has weaknesses; for example, I hate heights. I am not the kind of firefighter who finds rappelling from the top of a water tower fun. So I work on it. I climb ladders every chance I get. I hop up and run around on roofs. I practice self-survival techniques like window bailouts just so I can conquer that fear. My objective is to overcome my natural discomfort by developing my self-confidence. You need to do the same thing—rehearse what you would do if something went wrong.

Picture yourself and your partner crawling down a hallway to conduct a primary search of a room immediately adjacent to the fire room. The engine crew has a line stretched to the top of the stairway and is holding the fire in check, leaving you with enough room to get ahead and conduct your search. You are in the lead. Are you doing a left- or right-hand search? What tools do you have with you? Which tools does your partner have? You get to the bedroom door, and just before you turn to enter the room, the second bedroom flashes over. What are you going to do? Can you get out of the hallway in two crawls to a position of safety? If you have not gotten blown across the hall, what hand do you need to put on the wall to retreat? Where is your partner now? Who is leading the way out? If smoke conditions have suddenly gotten worse, or you did get blown away from the wall, how can you orient yourself to the way out?

These mental rehearsals are important. First, they make you think about things that can go wrong. None of us want to think that we can get hurt or killed. We try to protect ourselves psychologically by thinking about how things always seem to work out. Unless you have experienced a firefighter fatality or been injured on the fireground, it is perfectly normal to not think about the fact that you could be in a situation that could cost you your life. Looking at the world through rose-colored glasses isn't going to help us prepare for the threats we face, though. We need to confront the reality that even if we do everything right, the possibly of everything going wrong exists in every fire building we enter.

The second benefit of the mental rehearsal is that it gives you the opportunity to consider and fine-tune your options. Think about the various situations you may find yourself in. Go through every action on the fireground that you could find yourself having to perform: operating the nozzle, being the backup person, forcing the front door, being the pump panel operator, being the turntable operator of the aerial, and being assigned to vent the roof. Think about the problems that can come up. What if the engine pressure is not climbing as you throttle up; how would you fix it? What if four people are hanging out the front of a building calling for help; who would you rescue first?

The idea of mental rehearsal is not new. The men and women we have looked up to for generations have done the very same thing, even if they did not call it mental rehearsal. The *tailboard talk* is a perfect example of a mental rehearsal. Let's say you're out as a company performing hydrant inspections. You work for the typical full-time, understaffed department, so there are three of you working on the engine: the lieutenant, the engineer, and you. You stop to check a hydrant in front of a three-story, ordinary, U-shaped garden apartment complex. As you are flushing the hydrant and thinking about how this should be the job of the water department, the lieutenant says, "Without looking, how many lengths will it take you to get to the rear of the second-floor apartments in the corner of the building?" (See fig. 2–4.) Could you answer the lieutenant? Assuming your knowledge of fundamental firefighter skills is secure, you could answer the question if you took the time to look at the building when you got off the rig. If you could not answer, ideally the lieutenant will be merciful and just explain the error of your ways to you.

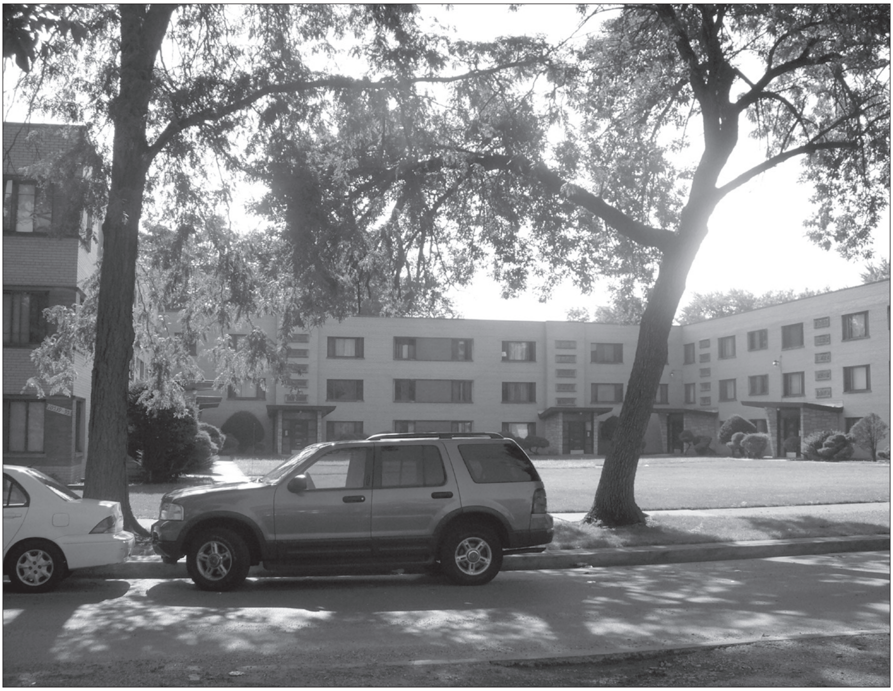


Fig. 2–4. How many lengths will it take to reach the back of the apartment in the A/B corner?

Mental rehearsals are a way that you can continually practice your size-up and fireground tactical decision-making skills. They give you the opportunity to think through challenging situations and develop options when a building is not on fire and no one's life is on the line. You can think through your options in a comfortable environment. What would you do if you were suddenly caught in a zero-visibility environment? What would you do if your SCBA suddenly malfunctioned? What if you pulled up to the front of a four-story building with multiple rescues, and you had to triage a building and decide who to rescue first? Practicing mental rehearsals beforehand can help control the flood of SNS reactions during a live event, because you have already allowed yourself to think about the bad things that can happen on the fireground.

Controlling your heart rate

The next skill set to develop is the ability to control your breathing. Remember when you were a kid, and you came rushing into the house so excited about something that you could hardly speak? What did mom or dad say? "Take a deep breath and then tell me what happened." Why was that the first step? Taking a deep breath gave you a moment to get your runaway thoughts under control. How rapidly you breathe has a direct effect on how rapidly your heart beats. Biofeedback is a technique to consciously alter the responses of your autonomic nervous system by being aware of how your body is responding. Breath control is one aspect of biofeedback that has been shown to work time and again to control the effects of anxiety-induced spikes in heart rate. By consciously slowing your breathing, that is, concentrating on breathing in a slow, rhythmic manner, you can slow your heart rate.

I use a tactical breathing exercise to control my breathing when I recognize that my heart rate is beginning to elevate because of anxiety. I adapted this exercise from David Grossman's fine book *On Combat*. This will work on the fireground, in a promotional interview, or when giving a toast at a wedding. When you recognize that you are entering a stressful situation, and anxiety is beginning to kick in, take that deep breath that mom talked about to a new level.

- Inhale through your nose for a count of four (one, two, three, four).
- Hold your breath for a count of four (one, two, three, four).
- Exhale through your mouth for a count of four (one, two, three, four).
- Pause for a count of four (one, two, three, four).

Repeat that series three times. You will feel your heart rate slow. You will feel the anxiety begin to ebb. You will be able to regain control of your SNS functions and give your cognitive ability the opportunity to reboot. I have used this exercise dozens of times in the last several years. The key is to practice this tactical breathing exercise on a regular basis. You need to put it together with self-awareness and mental rehearsals so that when you are crawling down a hallway and conditions suddenly change, you don't freak out, curl up in a ball, and get ready to die. You will have the skills in place and the mental attitude to fight and survive.

Sleep Deprivation

As physiological factors go, sleep deprivation is one that has received little focus from the fire service until recent years. In 2007, the International Association of Fire Chiefs (IAFC) published the report, *Effects of Sleep Deprivation on Fire Fighters and EMS Responders*.[20] This study is extensive and well worth reading. The IAFC has complemented this report with downloadable video releases. The videos do a good job of explaining the realities of sleep deprivation and can serve as an excellent company level drill.

Sleep deprivation is not strictly a fire service phenomenon, nor is it directly related to the challenges on the fireground, but it is a significant factor in the lives of many of our members because of its physiological and psychological effects. There are multiple ways that sleep deprivation can occur. Given the nature of the 24-hour fire service response, it is expected that our members will have their sleep disrupted. Sleep deprivation is a factor whether you are staffing your station on 24-hour shifts, 10/14-hour split shifts, 12-hour shifts, or as an on-call member of a paid-on-call or volunteer department. There are even departments that use 48-hour-on–96-hour-off shifts to reduce the burden on members who commute long distances. No matter what schedule you use, you will most likely wake someone up to go on a call.

The normal human being is engineered to be a day-dwelling creature. We rise with the sun, and prior to the widespread use of Mr. Edison's light bulb, tended to go to sleep once darkness fell. Before the industrial revolution, this natural cycle ensured that most people were well rested. In 1910, the average person slept nine hours a night. As we made technical progress to "conquer the night," we created working environments where people could be expected function in a 24/7 manner.

The average American now sleeps approximately 6.5 hours per night. Our need for sleep has not changed in a hundred years. We have not developed an adaptation that reduces our need for sleep. We are simply robbing ourselves of a vital component of our continued health and productivity. The effect of the development of our around-the-clock culture is a nationwide experience of sleep deprivation and fatigue. It is interesting to note that Americans get less sleep then members of other Western nations, according to the 2007 IAFC sleep deprivation study.[21] The effects of chronic sleep deprivation go beyond merely being fatigued. Studies have shown that chronic sleep deprivation leads to increased risk for work-site injuries, heart disease, and cancer.

Isn't it interesting that firefighters average five times the number of work-related injuries as other trades, and that we have the highest percentage of on-the-job heart attacks, according to a study published in the March 2007 *New England Journal of Medicine*?[22] If you receive notifications of LODDs, there are almost daily e-mails about a brother or sister who has died from occupational cancer. The diseases that are killing firefighters are also attributed to sleep deprivation. We need to understand the effects that sleep deprivation and our body's need for sleep have on our ability to be at our peak condition—to be in the ready position.

Acute and chronic sleep deprivation

The effects of sleep deprivation can impact us if we miss even a single good night's sleep, or as it's referred to clinically, restorative sleep. In addition to the daily reality of disrupted sleep cycles, two key factors are chronic sleep deprivation and acute sleep deprivation. There is evidence that missing as little as one hour of sleep per night for a full week has the same effect as being awake for one full 24-hour period. Sleeping six or fewer hours per night for a week can have the same impact on your heart as smoking a pack of cigarettes per day.[23]

The IAFC study also highlights some interesting findings. "In fact, studies show that being awake for 18 hours produces impairment equal to a blood alcohol concentration (BAC) of 0.05, and deficits reach a BAC equivalent of 0.10 after 24 hours of wakefulness. Thus, a drowsy driver may be as dangerous as a drunk driver."[24] This factor is critical to managing our physiology and maintaining a high level of cognitive functioning on the fireground.

Let's assume for a moment that you work the traditional 24-hour-on–48-hour-off rotation. Your shift starts at 7 a.m. You get up at 5 a.m. so you can jump into the shower, grab your morning cup of coffee, and try to be at the firehouse no later than 6:15 or so. You get to work, change into your uniform, and have another cup of coffee with the guys wrapping up their shift. At 7:00, roll-call begins, and everyone on the crew gets their assignments for the day. As the day moves along, your crew does the housework, goes to drill, and responds to six or eight still alarms. You sit down to dinner and then put on a movie. Halfway through the movie you respond to another run. You finally get back and finish the movie: It's 11 p.m. You are likely to have the same cognitive impairment as if you had a blood alcohol level of 0.05, and 0.08 is the legal limit to be considered driving under the influence in many states. A blood alcohol level of 0.04 is generally the standard for a commercial truck driver. You're done with the movie and figure, "All right, I probably ought to go get some rest." You head off to the locker room and take care of all the normal ablutions, and finally wander in to hit the rack about 11:30. At 11:45 the bells ring for a report of a structure fire. How clearly are you thinking? You may be alert because you have not slowed down yet; you have not given your body the chance to shut down. You are not going to have the same level of cognitive function as if you were rested, however.

It is worth noting that fireground injuries occur twice as often in the early morning as in the mid-afternoon. The statistics cited in the IAFC study show that "the peak period for structure fires attended by fire departments was noon to midnight (62.6%), and the fewest occurred in the early morning hours of midnight to 6:00 a.m. (16.4%)."[25] You would expect that injury rates would be highest during the time of highest fire activity. This is not the case. The data presented by Drs. Elliot and Kuehl in the IAFC study show that 3.9 injuries occur for every 100 fires during the midnight to 6 a.m. shift, whereas 1.9 injures occur for every 100 fires from noon to 6 p.m. It is a reasonable assumption that the effects of sleep deprivation and sleep inertia play a role in these injuries.

Sleep cycles and sleep inertia

We are supposed to sleep at night. This normal pattern of wake and rest is called the circadian rhythm.[26] When we go to sleep, we experience two different, yet equally important, states of rest. Initially, we enter the nonrapid eye movement (NREM) state, which is composed of four stages of progressively deeper sleep.[27] Once we have reached the stage 4 level of sleep, we then enter the rapid eye movement (REM) state. NREM sleep is where the body does the physical repair work that is vital to maintaining health. REM sleep is where dreaming occurs, and it helps to support learning and cognitive functioning. So, NREM sleep heals the body, and REM sleep heals the mind.

These sleep cycles typically develop over the course of 90 to 100 minutes. When you awaken from stage 1 or 2 of NREM sleep, or from REM sleep, you tend to be fairly alert. However, if you are woken during stage 3 or 4 NREM sleep, you are more likely to "experience *sleep inertia*, a state of grogginess and diminished performance."[28] The reason for this is brain activity. During NREM stages 1 and 2, as well as during REM sleep, brain waves operate at a fairly high frequency, near the same speed as when we are awake and alert. As we progress into the deeper state of stages 3 and 4 NREM sleep, our brain waves slow down, and their wavelength becomes much wider. Our brains are actually operating more slowly. It is easier to speed up our brain waves from the mildly slower states found in NREM stages 1 and 2 or REM sleep than to speed up from the slow speeds found in NREM stages 3 and 4. The sleep inertia that we experience when woken during stage 3 or 4 of NREM sleep is a result of the brain operating at a slower speed.

The problem is that we do not get to control when the alarm comes in or where we are in our sleep cycle when it does. Emergencies are pretty much unplanned events, and there is no way for us to gear our sleep cycle around alarms. Sleep inertia is usually most pronounced in the first 30 minutes after being woken up during a stage 3 or 4 NREM cycle. The effects, however, can continue for up to two hours.[29] The concern here is cognitive functioning. Most firefighters are going to get woken up in the middle of the night to respond to a call. That's a reality anyone who has spent much time in emergency response has experienced. I'm sure we have all been woken up for a call sometime in the middle of the night and felt like we just couldn't think. We're barely able to understand the dispatcher when the address is announced; we may even not wake up enough to recognize that there is a call.

We cannot plan our sleep periods to avoid being woken up in the middle of a stage 3 or 4 NREM cycle. There is no physiological trick that we can employ in these situations to wake up and be alert, but we can prepare ourselves by being aware that we will likely find ourselves in these situations. Several studies have shown that sleep-deprived drivers are twice as likely to be involved in an accident as those who are not sleep deprived[30]. If you are the engineer/chauffeur/driver for the shift, and you get woken up and know that you are groggy, you can recognize you may be coming out of a stage 3 or 4 NREM phase, and you and your crew may be better off if the task of driving is assigned to another member of the crew who is more alert and thus more capable of safely driving the apparatus. If you are unable to do this because of department policy, or the lack of a qualified driver who is more alert, then *slow down*. Yes, there is an emergency, and, yes, we have a duty to get there as quickly as safely possible. Recognize that you are not alert, and that your reactions and processing time may be delayed. By slowing down, you give yourself extra seconds to react to changing traffic conditions. You are adjusting for conditions. How many drivers receive traffic citations each year for driving too fast for conditions? Generally that applies to weather, but as responders, we need to consider the effects of moving too fast for our mental conditions as well. This little buffer may be all it takes to make sure you and your crew arrive safely.

If you are an on-call member—whether volunteer, paid, officer, firefighter—who is expected to respond from home, these same concerns apply. You are going to be woken up at a bad time in your sleep cycle at some point. The temptation may be to grab a can of soda or some other caffeinated beverage and down it en route to the station or scene. It's worth noting that the effects of caffeine are not instantaneous. While 250 mg of caffeine (the equivalent of two cups of coffee) has been shown to increase alertness, it takes time to take effect, and lasts roughly 4–5 hours. Once again, your best bet may be to slow down while you are driving and give your brain time to speed up.

Aside from the effects of sleep inertia on driving, it is worth noting that cognitive functioning also can be impaired by sleep inertia. If your brain waves are operating at a slower pace, it will take longer for you to recognize hazards and make decisions. Again, there is no trick to getting around this fact of life. We need to recognize that sleep inertia is a factor that impacts our functional ability. Consider once again the IAFC statistics about fireground injuries. You are twice as likely to get injured in the middle of the night. Why? Sleep inertia inhibits your ability to recognize and adjust to hazards.

"I'll sleep when I'm dead"

I was always the guy who prided himself on not needing sleep. I would stay up for two or three days at a time when I worked as a shop manager for a theatrical lighting company and prided myself on being able to do the same in the fire service. Boy, was that stupid. I started realizing that I was sick more often and lacking in motivation, especially as I got older. Even before researching the effects of sleep deprivation, I realized I could not continue to burn the candle at both ends. That sounds pretty obvious, and I think most of us can agree with it in principle. How many of us are really living a lifestyle where we get eight or more hours of sleep a night? Most people who join the fire service fit the mold of being aggressive, type-A, personality types. We are on the go constantly. We work multiple jobs, we work 48-hour shifts, and our younglings tend to party like rock stars. It can be a collection of choices that wreck havoc on our bodies.

We need to sleep more. Studies consistently show that is a fact. Yes, many of us have second jobs, families, volunteering, and other commitments that keep us from being able to get off work after a night of no sleep and go home and rest. We need to start looking at the research and do a better job of taking care of ourselves. Think of it this way: Insulin-dependent diabetics stay healthy only by being vigilant about checking their blood sugar, taking their medication at the proper times, and eating when they are supposed to. Unfortunately for all of us type-A firefighters, sleep works the same way. If we do not get enough of it, often enough, it will do terrible things to our health.

According to Dr. Kerry Kuehl, one of the principal authors of the IAFC study, roughly 50% of the population can tolerate acute sleep deprivation and still perform reasonably well. A third of the remainder will show some impairment of their cognitive functioning, and the remainder (roughly 20%) will tolerate acute sleep deprivation poorly.[31] We do not do any selecting of our members based on their ability to tolerate sleep loss. We give written exams and physical agility tests, and we even work up psychological profiles, but we do nothing to assess our new hires for their ability to stay awake and still be able to effectively operate on the fireground. It is worth noting that some people are more prone to suffering from acute sleep loss and sleep inertia. We need to understand this fact and work as a community to develop a way for our members to get the sleep they need to maintain optimum health.

One of the points highlighted in the IAFC report, as well as in the supporting videos, is that we need to sleep more. One way this can be accomplished is by taking naps. I've been one to joke about the need for a "safety nap" at the firehouse, but research shows that this is no joke. I've seen resistance in agencies to allow members to nap during the day. The normal attitude is, "You're supposed to be working! I'm not paying you to sleep all day." This is a reasonable point, if you are talking about a typical workplace where people go home each night and have the opportunity to develop a consistent sleep pattern. It could be argued, no matter how unlikely, that the typical shift worker (in industry) has all the opportunity in the world to get an adequate night's rest. For the average firefighter, disrupted sleep is a major factor. Career members may have extended off hours, but the effects of being up for 24 hours will not be mitigated by the attitude, “You have two days to sleep when you aren’t here!”

If we consider the world of part-time or staffed volunteer stations, consider that most members have some other employment. They do not have the same opportunity to rest in their off hours as their career brethren, because they are spending their off hours at the firehouse. When we look at the research about the effects of sleep deprivation, and the increases in injury rates among fatigued employees, we should not be questioning the value of having our members nap; we should question the risks in having our people operate when they are not well rested. Naps that are shorter than 20 minutes, or longer than 90 minutes, have the value of giving the member a chance to rest and will aid in their being more alert. By sticking to less than 20 or more than 90 minutes, the chances are reduced of a member being awoken during a stage 3 or 4 NREM cycle and experiencing sleep inertia. It is certainly worth examining the positive effects of napping because of the potential to decrease injuries and improve the long-term health of our fire service warriors.

Thriving

There is no question that as a firefighter you are going to have to confront physical and psychological challenges. You will be tired, cold, and wet, or tired, hot, and wet. You will confront mental and emotional adversity in many ways. You will be scared. That’s okay. What matters is how you deal with that fear. Remember what Mark Twain said, “Courage is resistance to fear, mastery of fear—not absence of fear.” If you do not take the time to understand how your body will react under stress, you are setting yourself up for failure. You can prepare yourself to deal with the stressful situations that cause others to panic by conducting honest self-assessment and using the techniques of conditioned response, mental rehearsal, realistic scenario-based training, and breathing control.

In our trade we have to deal with not just a single physical threat, but a wide spectrum of potential harm. First, we run into buildings that are on fire and structurally weakened; we face acute and permanent injury because of the environment we work in. Second, we have added risks because of the toxicity of the products we deal with: smoke, hazardous materials, and carbon monoxide, to name just a few. Third, we must contend with the acute and chronic effects of heat stress. Fourth is the impact of sleep deprivation. The fifth area of harm is the stress level all of these aspects can place on our home life.

Preparing for all of these potential causes of harm is not just a good idea—it is a responsibility that each and every one of us must live up to. Being overweight, out of shape, or ignorant of the effects of the fire building on our physiology and psychology cannot be tolerated. Not striving to be in the best possible condition to confront these hazards is as bad as willfully ignoring the realities of building construction or failing to learn how to use your SCBA. These are essential skills that must be developed to thrive on the fireground. If we are not prepared, we will needlessly place our lives in danger. That same lack of preparation can indirectly expose our brothers and sisters to harm (when they try to rescue us or cope with our untimely death) and impact the financial health of the communities we serve because of our greater risk of injury. Most importantly, we are putting our loved ones in a position to deal with the aftermath if something tragic happens to us.

A tragedy is "a lamentable, dreadful, or fatal event or affair; calamity; disaster."[32] If we end up dying or suffering a chronic injury because of our negligence or our laziness, that is a tragedy our families will be forced to deal with. Have you acknowledged that this trade can kill you or seriously injure you? Have you had that conversation with your spouse or other loved ones? The stress on a family that comes with having a loved one regularly in harm's way can be difficult to cope with. While a quick search doesn't turn up an accurate statistic on divorce rates among firefighters, it is a common problem that befalls many of our members. While divorce occurs in roughly 43% of all marriages (based on US Census data from 2000)[33], there is a perception that it occurs with greater frequency among firefighters. There is likely some truth to that perception, even if it is only based on anecdotal evidence. There are many stresses on a family that come with a career in the fire service. In part, it may be a challenge for our loved ones to understand how we can selflessly risk our lives and in turn force them to accept our possible injury or loss.

In the Irish dirge "Grace," the lyrics capture this idea clearly: "Now I know it's hard for you, my dear, to ever understand, the love I bear for these brave men, my love for this dear land . . ." Of course, "Grace" is about a young man answering the call of Irish independence in 1916, but the universal point it makes is about selfless service. After all, it is our selflessness and our loyalty to our brothers and sisters that are central features of the commitment we have to honor, courage, and duty. Much the same sentiment is expressed in the movie *Black Hawk Down* by Hoot, the character played by Eric Bana:

> *When I go home, people'll ask me, "Hey Hoot, why do you do it, man? What, you some kinda war junkie?" You know what I'll say? I won't say a goddamn word. Why? They won't understand. They won't understand why we do it. They won't understand that it's about the men next to you, and that's it. That's all it is.*[34]

If we expect to thrive in the chaotic environment of the fireground, and if we expect our families to bear up under the strain that a life like this can bring, we must be prepared; we must strive to be in the ready position. We must also help our families achieve a comparable resiliency. I am not a psychologist or a therapist. I am a fire service warrior who has experienced the strain a career in the fire service places on a marriage. I have kissed my son on the cheek as I left the house in the morning with the thought in my mind that I hope I come home to him again. I see it as my obligation to my wife, to my son, and to everyone else who cares about me to do everything I can to make sure I come home safe.

As was stated in chapter 1, "everyone goes home" is a goal that is destined to fail because we will never eliminate all fireground fatalities. I stand by that statement. Our goal must be to be in the ready position and possess the mental and physical capacity to eliminate all of the controllable factors that can lead to a firefighter fatality. Only then can we reduce the tens of thousands of injuries that are suffered in the line of duty each year. We must acknowledge the risks of our calling and do everything in our power to reduce or eliminate those things we can control. Self-control is having the discipline to do your part to control these factors: exercise, eat a healthy diet, participate in training, and master the physical and mental skills needed on the fireground.

The goal of the fire service warrior is not just to survive the threatening environment that is the fireground but to thrive there. Thriving on the fireground means mastering the fundamental skills of the firefighter and being prepared for physiological and psychological challenges. Seeing yourself as a fire service warrior is one way of framing how you can go about this. The next chapter covers the topic of the foundation, that is, the physical and mental capacities that the fire service warrior must develop to move toward the ready position.

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3

The Foundation: Physical and Mental Preparation

Only people willing to work to the point of discomfort on a regular basis using effective means to produce that discomfort will actually look like they have been other-than-comfortable most of the time. You can thank the muscle magazines for these persistent misconceptions, along with the natural tendency of all normal humans to seek reasons to avoid hard physical exertion.

—Mark Rippetoe

Fighting fires is difficult work. The challenges of our trade tax our capacity both physically and mentally, as described in chapter 2. That chapter described the very real physical challenges we face and the impact of our physiology on our psychology and it also touched on the mental challenges that are a daily part of being a fire service warrior.

Having an understanding of some of these challenges now, the next logical step is to develop a way to thrive during these challenges, rather than suffer because of them. We need to break these ideas down—physical preparation versus mental preparation—so that we can see the individual elements of each. This is much like the way we teach building construction and fire behavior as wholly-separate cognitive skills in a recruit academy. We lay the foundation of understanding by teaching the critical knowledge first, but then expect the firefighter to synthesize an understanding of how critically interrelated the ideas are once they are in combat. We do not always do an effective job of ensuring that our folks can put all the pieces of the puzzle together.

Chapters 4 and 5 will also examine physiology and psychology separately, as we begin to address concepts about fundamental skills and decision-making systems. Finally, in chapter 6, we see how each of these elements fit together as a way for our fire service warriors to attain the ready position.

Physical Preparation

For the fire service warrior, focusing on physical preparation is more straightforward and easier than mental preparation, though I use the term *easier* with tongue firmly in cheek. The level of physical fitness that is required to prepare for the physiological stress of the fireground is anything but easy, but compared to the demands of forging mental readiness, it is simpler to track and measure. Also, physical fitness is something that we all have some exposure to, even if we have not tried to define it.

Firefighting is combat. Like combat, firefighting requires that we engage in physically and psychologically stressful tasks. The effects on the body are multifold. Studies have shown that the exertion of firefighting is equivalent to the metabolic effort engaged in by Navy SEALs (Sea, Air, and Land) and professional boxers.[1] To combat the effects of physiological and psychological stress, our fire service warriors should maintain a level of physical fitness that is commonly associated with elite athletes. This may not seem to be the case. There are thousands of firefighters in this country who do not meet the definition of being physically fit, and yet they manage to get the job done, right? I would argue that just because a lack of fitness has not caused someone to be injured or killed does not mean that it is not hurting them. Firefighters have higher incidents of cardiovascular disease and cancer than the general population. We have a significantly higher risk of an on-the-job injury than any other profession, including soldiers in combat! The effects of fighting fires will have a long-term impact on your ability to thrive into your senior years. Physical fitness has been shown time and again as a means of reducing the long-term harm you can suffer, as well as reducing the risk of heart disease and cancer. Being fit also improves the strength and endurance needed to perform physically demanding work on the fireground.

Any number of people will consider a run or brisk walk as physical fitness. If you are essentially a sedentary person who is trying to fight the trend of obesity that is sweeping the United States, or someone who is looking to maintain a basic ability to move around, that may be an adequate regime. Firefighting is not the same as running a 5K or even a marathon, however. A significant portion of what we are called upon to do demands strenuous muscular effort. Forcing doors, pulling ceilings, raising ladders, advancing hoselines, and carrying victims all require muscular strength and endurance, as well as flexibility and agility. When we are working on the fireground, we are taxing our body in multiple ways, simultaneously. The effort we expend on the fireground is similar to getting into a boxing ring. A professional boxer is in the ring for 10 to 12 three-minute rounds (30 to 36 minutes of work). Firefighters routinely use two air cylinders before being sent to rehabilitation (30 to 40 minutes of work). To properly prepare for these physical challenges, the fire service warrior needs to “train like you fight” and incorporate a fitness regime that mimics the exertion of the fireground.

Training for the physical Battle

To develop an exercise program to build the physical capacity required for firefighting, we need to examine the kind of work we do as firefighters and what types of exercises would be most beneficial. On the fireground we perform motions that are rarely mimicked by isolation exercises. Our efforts require the use of multiple muscle groups working together. Let's examine the act of pulling a drywall ceiling. Essentially, you can pull or push the ceiling using a pike pole to bring it down. If you take a minute and think about what parts of your body hurt when you finish pulling several rooms of ceiling, you will begin to realize that you are using a significant number of muscles, including the "quadriceps, hamstrings, glutes, abdominals, torso rotators, lower back stabilizers, deltoids, trapezius, triceps, biceps, and muscles of the forearm and hand (grip)."[2] These muscles are being used at the same time and in the eccentric, concentric, and isometric movements. The supposedly simple act of pulling a ceiling requires the central nervous system to coordinate all of these movements, as well as sufficient strength, endurance, and flexibility to perform the action.

The need to develop effective physical fitness in the fire service has recently been recognized. In 1996, the International Association of Fire Chiefs (IAFC) and the International Association of Fire Fighters (IAFF) partnered to create the Wellness-Fitness Initiative (WFI) Task Force "to address the issue of physical performance in the fire service."[3] In the words of the WFI Task Force:

> *The mission of the WFI Task Force is to enhance the medical, fitness, and behavioral health; medical and fitness rehabilitation; and wellness-fitness data collection of the fire service.*[4]

An outgrowth of the WFI Task Force has been the Candidate Physical Ability Test (CPAT) and Peer Fitness Trainer Certifications. The idea is to address the tens of thousands of fireground injuries and the approximately hundred line-of-duty deaths (LODDs) that occur nationally through developing a set of physical fitness skills and standards that both labor and management organizations agree upon—and promote that model.

We need to recognize that being physically prepared for the combat conditions on the fireground is one way to ensure that we are living up to the value of loyalty. Selecting candidates who have a basic physical fitness capacity is a matter of loyalty to the organization. We must separate those people who do not have the required physical skills or the desire to develop them from those who do. Hiring people who do not have a basic level of fitness exposes the organization management to employees who are more prone to injury and forces members of the organization to work alongside coworkers who are unable to carry their share of the load. This is a physical job. No amount of intelligence will eliminate the physical workload of making a trench cut. Political patronage will not change the physical and emotional toll of performing a vent, enter, and search (VES) operation to look for a missing toddler in a well-involved residence.

Striving for maximum fitness capacity is an issue of loyalty to our brother and sister warriors, and beyond that, being as fit as possible is also a matter of loyalty to your family, your friends, and yourself. Every year roughly 50% of the LODDs that occur are as a result of stress. According to the US Fire Administration (USFA), stress or overexertion as a cause of injury "is a general category that includes all firefighter deaths that are cardiac or cerebrovascular in nature such as heart attacks, strokes, and other events, such as extreme climatic thermal exposure."[5] Although the USFA report goes on to state that "classification of a firefighter fatality in this cause of fatal injury category does not necessarily indicate that a firefighter was in poor physical condition," we must consider how we measure proper physical condition.

This is a thorny topic. How do you define just what level of physical capacity is good enough? There are some standards that departments are using to establish a baseline for firefighter fitness and work capacity. The National Fire Protection Association (NFPA) has published Standard 1582, *Standard on Comprehensive Occupational Medical Program for Fire Departments*, and 1583, *Standard on Health-Related Fitness Programs for Fire Department Members*. Many departments have implemented the recommendations included in these standards. One of the Life Safety Initiatives that is advocated as part of the "everyone goes home" movement is, "Develop and implement national medical and physical fitness standards that are equally applicable to all firefighters, based on the duties they are expected to perform."[6] NFPA 1582 and 1583 are the most comprehensive attempt that has been made to achieve the goal of ensuring that firefighters have the physical capacity to perform the difficult job of operating on the fireground.

Our objective of being physically fit must begin with selecting candidates who have a basic capacity to perform the tasks required on the fireground, using the CPAT, or comparable measure, as a screening tool. The efforts continue through creating a culture in our firehouses that encourages firefighters to achieve their maximum physical capacity. This can be done through the Peer Fitness Trainer program, which certifies firefighters as fitness trainers for their department. Certification can be achieved by completing an open-source fitness methodology or your own fitness program. The key is to implement a program that will help prepare fire service warriors for the challenges they will face. Since every story starts at the beginning, let's begin with the standards.

NFPA 1582 and 1583

The NFPA, in their consensus standards 1582 and 1583, has made a determined effort to establish standards for the physical fitness we need on the fireground. NFPA 1582, *Standard on Comprehensive Occupational Medical Program for Fire Departments* was first developed in 1992 (under the title *Standard on Medical Requirements for Fire Fighters*) and has been updated under the regular review process that the NFPA uses. The 2007 edition continues to update the standard and address an ever-expanding list of medical concerns that may limit the eligibility of an individual to become a firefighter. As our understanding of the level of physical stress a person experiences on the fireground increases, it is understandable that ever-increasing limitations will be created.

The idea is not to rule out people who want to serve their community. There are men and women who feel a tremendous call to action to serve in their community's fire department and protect their neighbors, but are disqualified because of a physical condition they have little control over or one that is difficult to manage. These are noble and honorable people. This is a physically taxing job that places a tremendous stress on a person's body. Our objective is to see that every brother and sister who answers the call and shows up to fight fires has the best chance of returning home safely. We know that firefighters will die from uncontrollable circumstances. However, there are other things that we can control, and we must.

NFPA 1583, *Standard on Health-Related Fitness Programs for Fire Department Members*, is the latest attempt to tackle the difficult task of saying what physical capacity our members should have. Initially released as an advisory document, 1583 has become a full-fledged standard that spells out certain requirements for fire department health and wellness programs. Most important is that it specifies that "the Fire Department shall establish and provide a health-related fitness program (HRFP) that enables members to develop and maintain a level of fitness to safely perform their assigned functions." This recognition that we must provide our fire service warriors with the opportunity to prepare for the physical challenges is a major step forward.

Candidate Physical Ability Test

The CPAT is designed as a screening tool to see if prospective candidates have the basic physical ability to perform essential fireground tasks. After conducting a survey of 1,000 randomly selected firefighters and evaluating the job performance requirements they identified, the WFI Task Force developed the CPAT. The test consists of eight events: stair climb, hose drag, equipment carry, ladder raise and extension, forcible entry, search, rescue, and ceiling breach and pull. These tasks are completed while wearing a 50-pound weighted vest (simulating the effect of wearing full bunker gear), with an added 25 pounds carried during the stair climb to simulate carrying hose to an under-floor of a building. The test must be completed in less than 10 minutes, 20 seconds, and is treated as a pass/fail event. The requirements of licensing the CPAT prevent agencies from ranking candidates based on their score.

The overall goal of a CPAT, evaluating candidates for the basic physical abilities needed to function on the fireground, is a big step forward in developing a consensus regarding the basic physical skills that are required to do this job. By eliminating a traditional numeric ranking, and instead making the test pass/fail, we are able to assess for trainability. We measure the basic physical skills a candidate brings to the table. To comply with requirements for the equal opportunity of all candidates, there is an orientation session as well as practice sessions that every candidate must complete. This ensures the candidate has experience performing the skills, so that the test becomes a measure of capacity, rather than familiarity.

Peer Fitness Trainer Certification Program

The Peer Fitness Trainer Certification Program is another means that the WFI has developed to promote physical fitness.[7] PFTs are certified by the American Council on Exercise as personal trainers with a specific background in the fitness methods advocated by the WFI. According to *The Fire Service Joint Labor Management Wellness-Fitness Initiative Candidate Physical Ability Test Manual*:

> One role of the Peer Fitness Trainer (PFT) is to encourage safety and participation through their professional guidance and supervision of uniformed personnel regarding fitness issues.[8]

The PFT Certification Program is a joint labor-management program. As such, the certification is available to members of the IAFF, though, every agency would benefit from such a program. This is recognized by the inclusion of the PFT as a component member of the fire department's occupational fitness program in NFPA 1583. The PFT is a member of the department specifically trained to coach the rest of the team and help to develop fitness programming that supports the goal of increasing physical work capacity and acclimating to the rigors of the fireground. Civilian professional trainers can be very helpful when establishing a program and developing programming models. But only a fellow fire service warrior really understands on a gut level just what it takes to function on the fireground. By using PFTs, we can have one of our own specialize in fitness and exercise. In most agencies people specialize to one extent or another, for example, medics, rescue "gurus," and hazmat "gurus." In many cases drivers/operators are specialized as well. There is no reason that we should not acknowledge and make use of specialized fitness gurus to ensure that our brothers and sisters are being prepared for the physical battle of the fireground.

Fitness movements

Outside of the *official* fire service fitness programs, there are fitness movements that have caught on in the fire service, law enforcement, and military communities. There are CrossFit, Gym Jones, Starting Strength, SEAL Fit, P90X, and a host of Internet, book, or video fitness methods. The appeal of these programs is that they all involve some variation of open-source methodology. As an individual, you do not need to do much more than go on a website or read a book, and you can gain an understanding of the methods, goals, and exercises promoted by these groups. The beauty of the Internet is the wealth of free content that is available. Like anything, though, it is your responsibility to educate yourself *before* starting any kind of fitness program. You should have a physical examination by your physician (personal or department) and discuss the regime you plan to implement. Make sure that you are healthy enough to undertake an intense program of physical training. There is nothing more discouraging than starting a physical fitness program that is too advanced an ending up out of commission because you tried jumping in without the proper preparation. Most people wouldn't dream of entering a triathlon without knowing how to swim, bike, and run first. Just because you did jumping jacks and wind sprints in gym class at 15 doesn't mean you know how to implement a rigorous fitness program now.

On a personal level, two of the systems that I have used and found success with are CrossFit and Starting Strength. I am not the fittest man on the planet. I am not a fitness coach, an exercise physiologist, or a physician. I would lose to any good runner in a 5K, and I do not swim all that well. I do aspire to be in the ready position, however, and have experimented with methods to prepare myself for the hardships and challenges of the fireground. I want to have the best possible chance of coming home to my wife and son and living long enough to enjoy my retirement, and be a drain on the pension system by beating the actuarial estimates. I can share with you some of the methods that have worked for me. Again, you should consult your physician before entering into any kind of physically challenging activity.

CrossFit. A fitness philosophy and community founded by Greg and Laura Glassman, CrossFit's methodology can best be summed up as "broad, general, and inclusive,"[9] and is marked by their fitness prescription of "constantly varied, high intensity, functional movements."[10] To accomplish this goal, the CrossFit community advocates training in functional lifting using power-lifting and Olympic-lifting movements, gymnastics skills, and interval-type training. Their "Girls" and "Hero" workouts are generally couplets and triplets of movements involving both strength and cardio movements performed for time.

CrossFit's philosophy lends itself well to developing the physical skills of strength, stamina, endurance, balance, agility, and flexibility, which are a great benefit to the fire service warrior. Fire departments and fire service warriors around the country are using CrossFit's methods and workouts to prepare for the physical challenges of the job.[11] One of the things that CrossFit has done well is to make challenging physical fitness into a competitive sport. A CrossFitter will instantly be able to tell you his or her WOD (workout of the day) "Fran" time, or what their last CrossFit Total was. Fire service warriors are often referred to as type A personalities. We are aggressive and want to win. CrossFit puts a score on everything you do. This is not specifically done to compare yourself to other people. The concept is that you can only measure your progress by having an objective metric, like how long it takes to complete a certain well-defined activity. If you ran a 5k in 40 minutes and then conducted three weeks of training, did you see an improvement in time? That is an objective measure of progress. The side effect of this is that you can then compare scores with your fellow fitness enthusiasts, especially if they are posted on a dry-erase board or an Internet site. As Greg Glassman has said many times in articles, videos, and lectures, "Men will die for points."

CrossFit is an amazing way of getting fit and finding people who see value in embracing hard work to get better at something. It forces you to concentrate on your weaknesses. It offers a community of people who will encourage and support your fitness goals. One thing that its detractors say is that in this striving for points, there is less emphasis on maintaining proper form. That is 100% true. The key to avoiding injury and maximizing your fitness efforts, as an individual who chooses to incorporate CrossFit or any fitness method, is to learn the form first. It's much like training a new recruit how to don a self-contained breathing apparatus (SCBA): concentrate on learning the step-by-step process first. The speed comes once you know the form.

Starting Strength. A fitness system that focuses on the novice to intermediate development of strength, Starting Strength defines *strength* as moving really heavy stuff. The program is the brainchild of Mark Rippetoe, a well-regarded strength coach. Coach Rippetoe runs the Wichita Falls Athletic Club in Wichita Falls, Texas, and maintains the website www.startingstrength.com as a resource for individuals interested in weight training. He has authored several books, along with Lon Kilgore, a professor of kinesiology.

The Starting Strength system is designed around power-lifting movements: squat, overhead press, dead-lift, bench press, and power clean. It is designed to develop strength across broad muscle systems. If your goal is to develop raw strength, the kind needed to lift a firefighter weighing 300 pounds in full gear by the straps of the SCBA to perform a rescue drag, this program can be tremendously successful.

Coach Rippetoe's system recognizes the inherent adaptability of the human body. If we do the same thing repeatedly, our body becomes used to it and no longer responds. For you chronic coffee drinkers out there like me, that is why you can have a cup of coffee at 10 p.m. and go to sleep at 10:30 without any disturbance. If you gave that same dose of caffeine to someone who never drinks caffeinated beverages, they would be alert and have difficulty sleeping for the next three to four hours. It's all about adaptation. It should be obvious, but the same thing applies to strength training. The only way to get stronger is to continually increase stress on the body. You do that by adding weight, adding repetitions, or decreasing rest. That is why even people who perform some very difficult manual labor can be overweight. Their body adapts to the workload. If you take someone who has never swung a hammer and send them to frame houses for a day, that person will be exhausted after a couple of hours. The experienced carpenter who has been swinging that same hammer for 10 years will finish work and then go to the gym and work out. Why? The body has adapted to the stress of the workload.

You would think that our bodies would adapt to the workload of fighting fire, since that is our profession, right? No. First, we don't usually place that stress on ourselves regularly enough to find the same adaptation. How many fires are you responding to in a year? How many hours are you wearing your gear? You cannot adapt to acute exposures. I see this in myself regularly. If I have been on vacation for a few shift days, I lose some of the physical adaptation to walking around in turnout gear and engaging in the workload of firefighting. Conversely, when I am regularly teaching recruit classes or demonstrating tower burn evolutions, my body adapts. I become less physically stressed by fireground activities because I have spent hundreds of hours wearing my gear and crawling around in superheated burn buildings. My body has begun to adapt. The problem is that the stress must continue to be applied for the adaptation to develop.

In the same way, we must incorporate strength training to improve our basic ability to perform heavy work. Everyone is different, and there are a myriad of factors that come into play when you start designing a strength-training program: nutrition, rest, goals and objectives, your need for cardiovascular endurance, and the manner in which you will be using your strength. As fire service warriors, we are called on to perform very hard work under very stressful circumstances. That requires a commitment to developing strength and striving for fitness.

Measuring your progress

It does not matter if your department has implemented a procedure or rule that is compliant with NFPA 1582 or 1583; it is still incumbent on you, as a fire service warrior, to have the integrity to develop an appropriate level of physical readiness.

You need to be able to perform to a standard that measures your ability, be it the CPAT,[12] the CrossFit WOD "Fran,"[13] or a program of your own design. Numbers don't lie. You can measure the success of your fitness program by recording defined parameters over the course of time. Test yourself: Hop on the treadmill in full turnout gear, with your SCBA, and walk at 4 miles per hour until your low air alarm activates. How many minutes were you on air? What was your resting heart rate when you began? What was your heart rate one minute after finishing? Now, engage in your planned exercise program for six to eight weeks. Retest yourself. Did your numbers improve? If they did, you are on the right track. If not, you are probably not working out efficiently.

Developing an effective physical fitness plan is not something you can just do without a significant understanding of the physiology of human adaptation. The best method would be to consult with an experienced and certified trainer or coach. There is so much variation in the starting capacity of an individual, including the motivational level and capacity for adaptation, that any single program that is applied to a larger cohort of people will become the dreaded one-size-fits-none program. If you do not have a department PFT or do not want to spend the money for a couple of sessions with a personal trainer, then you need to do a significant amount of research to design a program that will help you develop a broad physical capacity at a rate of progress that is not overwhelming, and in a manner that ensures you are learning proper form and technique to reduce the risk of injury.

However you measure your efforts, the key is to see progress. You cannot see progress if you are not documenting numbers. A loose-leaf notebook, a pen, and a cheap stopwatch are all the equipment you really need to track your progress. If you want something more high-tech, workout logs are freely available on numerous sites on the Internet. There are Internet-based sites out there like logsitall.com, beyondthewhiteboard.com, or 21-15-9.com. These logs give you the opportunity to track your progress against others who are posting on these sites. Measuring your progress against a brother or sister at the firehouse can add a motivational aspect as well. While the proverbial statement, "There is nothing noble in being superior to some other person. The true nobility is in being superior to your previous self," is true, the nature of humankind is that we want to measure our progress, not just against ourselves, but against others.

By implementing a physical fitness regime that is based on research on the metabolic energy that firefighters typically expend, you can evaluate your personal level of fitness against a standard and determine if you are preparing for the challenges of firefighting. Your efforts will require focus, determination, and dedication. When you go to dead-lift two and one-half times your body weight, you are taxing your body, and, some would say, even your soul, to perform a very difficult act. The benefit of a program specifically geared to firefighting is that it will help you to forge not just a physical capacity, but also a mental capacity, for the work you must do on the fireground. One of the goals of training for elite military units like the Navy SEALs is to form the mental capacity to endure when your body starts telling you everything hurts. A well-trained mental capacity is as important to success as physical capacity. That is why we must possess both if we aspire to be in the ready position.

Mastering physical readiness

There are many methods for getting fit; the key is picking one that focuses on the skills of the firefighter to lift, carry, pull, push, and chop, and with the intensity that mimics that of the fireground. Aspiring to the fitness level of a Navy SEAL, a boxer, or an Olympic cyclist may seem extreme, the facts support our need to do so. What we must not do is implement a fitness program that is poorly designed or that is designed to be a one-size-fits-none prescription. Much as a paramedic must administer medication based on the size of the patient, fitness prescriptions must be tailored to the capacity of the person. We must be aware of this so that we do not injure our people through our own carelessness.

One of the roadblocks to getting firefighters to train the way they should is the fact that an exercise program that is sufficiently intense for the rigors of firefighting *hurts*. "No-pain, no-gain" is true. There is a difference between a difficult, taxing program that will disrupt homeostasis sufficiently to produce adaptation and growth and one that will simply cause needless injury. Squatting, pressing, and dead-lifting weights heavy enough to develop the strength needed to grasp the SCBA harness straps and drag a downed firefighter from a building is going to be hard work.

People sometimes misunderstand why this is the case. Your body is designed to adapt to the stress placed on it. Let's say you decide you are going to start working out. Your goal is to lose a little weight and just be active. On Monday morning you get up, hop on the treadmill, and crank it up to a 20-minute-per-mile pace. About 30 minutes later, you have covered a little more than a mile and worked up a bit of a sweat. Your body is warm, and you are feeling great. You get up Tuesday morning and do the same thing. Wednesday, Thursday, and Friday are repeats of Monday's routine. You take the weekend off, and Monday morning of your second week comes along, and you don't even break a sweat now. Maybe you are a little bored because you are not feeling challenged. What has happened? Your body as adapted to the stress of accomplishing the workload you are placing on it. Now, you are more fit than you were before, but you are not going to continue to get more fit by maintaining the same program. Mark Rippetoe and Lon Kilgore highlight this fact in their book *Starting Strength: Basic Barbell Training*: "So, as a general rule, you need to try and add weight to the work sets of the exercise every time you train, until you can't do this anymore."[14]

Our bodies are amazingly adaptable. That is why folks who spend eight hours a day digging ditches can still become obese. They are working hard all day, but their bodies have adapted to that stress. The same case applies to our fitness prescriptions. We need to push our bodies to adapt. We accomplish that by adding weight incrementally to our lifts and by running further and faster if we are running. We do it by coupling movements together so that we are performing weighted movements in a timed environment.

If you do your 30 minutes of cardio on Tuesday and Thursday and head into the gym and do your chest and triceps on Monday, back and biceps on Wednesday, and some leg extensions and Smith machine squats on Friday, you will develop muscle. You will become toned and burn off some fat. You may even add a significant amount of strength, if you are constantly adding weight. What you are not doing is training your body to respond to the stress it will face on the fireground.

Maybe you feel as though you do not need to have the strength to drag a 300-pound firefighter from a building unaided. You are wrong. You should be able to at least *begin* to rescue a partner that suddenly becomes incapacitated inside a structure fire. Yes, you are going to call a rapid intervention team (RIT), but you cannot just sit there and wait. We are talking about loyalty, and being loyal to your brother or sister warrior who has just become incapacitated because of a medical compromise or a fireground injury means being able to do something to start getting that warrior out of there. No one in the fire service needs to be Superman or Wonder Woman. You do not need to able to do it all by yourself. You should not have to be able to drag a 300-pound firefighter 100 yards through a maze unaided. You need to maximize your physical capacity, not to some random bench press weight or mile run time, but to a capacity that you can achieve. You need to put the effort in to achieving it. It is part of your duty.

Beyond the possibility of having to rescue your partner, there are the very real physical demands that normal operations place on our bodies. Published literature has shown that firefighters performing fireground operations during interior structural firefighting commonly reach heart rates of 164 to 183 beats per minute (bpm).[15] This is a significant workload. The fitter you are, the greater work capacity you will have; the greater your work capacity, the more controlled your heart rate and breathing will be while performing strenuous fireground tasks. In short, the more fit you are, the more likely you are to survive on the fireground.

Fireground Rehabilitation

Rehabilitation on the fire scene is finally becoming a commonly accepted practice. For many years, our rehab process involved getting a cup of coffee once you got back to quarters. Since 1987, with the release of NFPA 1500, we have had a “requirement” to provide for rehabilitation on the fireground and at other emergency scenes. I use the word “requirement” in quotes because, as most of us know, there is no NFPA police. NFPA standards are consensus standards and have the weight of law only if they are adopted by a legislative body. As a result, there has been relatively little enforcement of these best practices. It has been incumbent upon individual departments to develop and implement the rehabilitation process in a manner they deem appropriate.

To accomplish this task, resources are available for departments to use. The Federal Emergency Management Agency (FEMA) has developed and released *Emergency Incident Rehabilitation*, as a joint effort between the USFA and the IAFF. This guide serves as an explanation of how emergency scene rehab can help reduce injuries and LODDs by ensuring that proper and sufficient rest, revitalization, and medical monitoring occurs on emergency incident scenes. The guide has developed over the years; in 1992, a 12-page document (FA-114) was published by the USFA. The most current version, 2008 (FA-314), is 174 pages of detailed information about the stress load and effective practices for establishing rehab for our operational and training scenes.

The objective of providing rehab is to give our fire service warriors a chance to physically recover from the stress of fighting a fire and responding to other emergencies. My goal is not to rewrite the FEMA book, but rather to cover some key points. I think it is critical that we acknowledge the need for rehab and recognize that it is an example of loyalty to our people. I have been transported to the hospital for heat exhaustion from fire scenes, and I have worked fires where I have used four cylinders without much more than an informal rehab. I have also had the experience of being sent to a formal rehab sector after using one cylinder and being placed “out of service” for 20 minutes. Both of these extremes can be frustrating. Most of our firefighters out there are loyal “sled-dog” types who work hard to get the job done. They will not voluntarily say, “I need to sit down,” partially out of a macho attitude, but more out of a perception that taking a break is being disloyal to those brothers and sisters who are still working inside. Having a realistic standard operating procedure for establishing and conducting rehab takes the pressure off of our people and reinforces for our incident commanders how we expect them to perform. Most importantly, we should be meeting the criteria established in the FEMA *Emergency Incident Rehabilitation* guide (fig. 3–1).

The objective is to make sure that our fire service warriors are allowed to rest and rehydrate. Dehydration will decrease our capacity to perform hard work and manage heat stress and increase our risk of cardiac compromise.

Self-Rehab Criteria	Formal Rehab Criteria
• Following use of one (1) "30-minute" SCBA Cylinder • Following 20 minutes of intense physical labor • As necessary	• Following use of two (2) "30-minute" SCBA Cylinder or one (1) "45 or 60-minute" SCBA Cylinder • Following 40 minutes of intense physical labor • When directed by an officer • When feeling the need to
Self-Rehab is conducted at the Company Level after expending one "30-Minute" SCBA Cylinder and MUST include rehydration and a minimum of 10 minutes rest. It is the responsibility of the Company Officer to ensure all personnel are fit to return to duty.	Formal Rehab is conducted by the "Rehab Group" within a formal IMS structure. Personnel MUST undergo medical evaluation, rehydration, and a minimum of 20 minutes of rest. Personnel are released provided they are medically cleared to return to duty.

Fig. 3–1. Criteria for rehabilitation

Dehydration

Water has been identified as a critical source of life from the time of our first oral historians thousands of years ago. The human body is roughly 60% water.[16] Maintaining this level of hydration is critical for our overall health down to a cellular level. When we are at rest, the main way we lose water is by urination. We are capable of maintaining an adequate hydration level under normal conditions by drinking water. Our concern must be the level of dehydration that can occur while engaged in the heavy labor of firefighting. During periods of intense physical labor, our body attempts to maintain a thermal balance by sweating. According to the FEMA *Emergency Incident Rehabilitation* guide, "During periods of extreme exertion, some people may lose as much as 1 liter (about 1 quart or 2.2 pounds) of sweat per hour."[17]

Monitoring your hydration level cannot be adequately accomplished by waiting to be thirsty. Studies have shown that dehydration may set in before you begin to feel thirsty. Urine output is the single easiest way of checking on your hydration level. A properly hydrated person will have, "urine that is relatively clear in color, with little or no odor, and in a reasonable volume. Urine that is dark (typically yellow) in color, has a strong odor, and is low in volume is indicative of a body whose hydration level is low and in need of fluid replacement."[18] Using this method of monitoring your personal hydration obviously requires some vigilance. You need to be clinically evaluating your urine output throughout the day as a check on your hydration level.

While operating on an incident scene, the onset of a headache may be the first indication that you are becoming dehydrated and need to seek rehab. I have always operated on the principle that "if you don't need to pee, you aren't drinking enough water." I believe that making a point of drinking water constantly is an effective strategy for avoiding dehydration. This is now recognized as a "prehydration strategy."[19] The recommended prehydration strategies include the following:

- Use the guidelines for monitoring urine output, as discussed earlier in this section to determine level of prehydration. Dark or odorous urine is an indication that fluid intake should be increased.
- Avoid excessive amounts of caffeinated beverages while on duty or prior to training activities. Caffeinated beverages cause increased urination and make it more difficult to maintain adequate hydration.
- Excessive amounts of alcohol used within the previous 24 hours often cause dehydration. In fact, dehydration is one of the factors in a hangover.
- If performing strenuous activities while on duty, such as physical training or practical training exercises, make sure to drink adequate fluids following these activities to restore hydration levels in the event that an emergency response occurs.[20]

Maintaining proper hydration helps ensure that the body has the ability to manage the heat stress that we will experience when operating in personal protective clothing and engaging in fireground activities. Most of us would not dream of allowing our personal vehicle to run low on coolant. Checking the coolant level in our apparatus is a daily preventive maintenance function. Why do we ignore this same crucial step for our bodies? The reasons we don't pay attention to proper hydration are just as diverse as our members and range from the old standard, "I don't like water," to "Hey, it was Timmy's bachelor party; we were out a little late." We have all been guilty of this at some point.

I remember teaching at a fire school one year, in which all throughout Saturday's evolutions, students were dropping like flies and being sent for IVs. The weather was warm, and there was some humidity in the air, but the acknowledged problem was that for most of the students there, many of them experienced firefighters, it was their annual weekend out with the boys, and they had overdone the comradeship on Friday night. Water was made available all day long, each student was required to have a water bottle, many hydration breaks were given, and any student who showed up in the morning who appeared hungover was sent back to the hotel. The staff did their part to limit the risks of dehydration injuries. However, the systematic effects of dehydration still felled many students that day. The same thing could occur on any given workday, if any of the crew were out partying the night before.

Keeping our bodies properly hydrated is one of the few means we have of directly controlling our ability to tolerate the heat stress and the physical workload of the fireground. Developing physical conditioning is something that takes time and requires adaptation. Hydration is something each one of us can start doing immediately to help maintain a healthy body and a physical resiliency. If you take a moment and really think about the physical risks of heat stress and the metabolic workload of firefighting, it should be obvious that you need to be vigilant about hydrating before shift and throughout the day, as well as rehab during and after an incident. We can use proper hydration to reduce our likelihood of cardiac compromise, improve our ability to manage heat stress, and keep our body in the ready position.

Mental Readiness

Firefighting challenges us mentally as well as physically. We must be prepared for the impact of stress on our cognitive abilities as well as our emotional health. I have talked about the psychology of anxiety and fear already. The task now is to focus on forging the mental readiness that allows us to handle challenges to our emotional capacity and to endure suffering in order to do our duty. This section will describe a philosophical approach to that, including research into resiliency as it applies to mental health.

There are two primary states where fire service warriors operate: at rest (in the firehouse or conducting a nonemergency assignment) or working (engaged in mitigating an emergency that is putting someone's life in danger and may kill or injure you). Again, we are discussing fireground operations for the most part in this book. For many departments, emergency medical services (EMS), fire prevention, still-alarm incidents, rubbish fires, auto fires, and the like are the bulk of their daily duties. Few departments are responding to a structure fire every day, and those that are generally see that duty spread across various companies. There can be a temptation to downplay the challenges that face us on the fireground as a result of the low frequency of those operations. However, we should consider that the fireground is the most challenging environment we can operate in. It is where the greatest number of life-threatening events can occur, and it challenges us in a cognitive and physical way that no other emergency response will. This reality should emphasize our need to think about how we prepare for the mental challenges of firefighting. That preparation will carry over into being prepared for any eventuality.

Put your game face on

One of our challenges in preparing for the mental impact of emergency response is that we do not have any time set aside to mentally prepare for the activity we are about to engage in; the time to "put our game face on." If you think about the fire service as a team sport, a topic we cover in detail in chapter 4, you can see the relevance. Unlike a professional football team, we do not know exactly when we are playing, so we do not have the opportunity to mentally (or physically) warm up when it is game time. We rapidly shift from one state of being to another when we are dispatched. Therefore, we must continually strive to be mentally prepared. To be ready for our active working state, we must have a foundation. Our training, experience, and life stance all impact our ability to handle the emotional stress of our position in a healthy way.

Training is a good starting point, because there is a certain universal nature to it. Our training occurs in three primary ways: in formal classes, at the company level, and by individual study. Formal classes are the purview of state regulatory agencies and fire departments. Formal training leads to certification and serves as the justification for our capacity to do the job. At the formal level, organizations can provide personnel with an introduction to the emotional realities they will face. The adage "forewarned is forearmed" is entirely appropriate. Some departments have veteran firefighters who have been burned or injured present their stories to recruit classes during fire academy classes. These valuable lessons make the abstract idea of the dangers of the fireground real for new recruits. Recruit training should also include an introduction to the psychological challenges of the fireground so that the recruits can begin to form a coping system. This training should cover common reactions to psychological stress, unhealthy behaviors to watch for, and strategies for coping with the emotional challenges of being a first responder.

To prepare for emotionally challenging situations that occur during normal operations, fire departments can work with firefighters informally on a company level. Fireground veterans sharing their experiences during informal "kitchen table" sessions gives newer members a chance to learn from more experienced members. The company officers are also in constant contact with their members during the course of a shift, drill, or meeting. This is an opportunity to monitor personnel for signs of unhealthy behaviors. While preparing for the psychological stresses of firefighting, we need to study ourselves and study by ourselves to adequately prepare. Knowing ourselves means having a clear understanding of how we respond to stress. As individuals, we can study Stoic philosophy, read about choice theory, or find another means of preparing for the expected stress of our position. Experience is a more elusive tutor. I can't remember who first told me, "Experience is what you get when you didn't get what you wanted." We do not know how a situation will affect us until we have been through it. We build the foundation for how we would cope with each successive exposure. Thus our experience base can be used in a positive manner that allows us to develop a pattern recognition that speeds decision making and helps develop our intuitive skills.

However, experience can also have negative impacts on our brothers and sisters. Consider for a moment stereotypical inner-city firefighters who undergo repeated exposures to emotionally stressful circumstances; without a set of healthy coping skills, they suffer burnout. What happens? These firefighters begin to hate the job they once loved and dread going to work. They become lax in their attentiveness or begin to disregard the daily routines of the firehouse. They didn't suddenly turn into mutts, but they are withdrawing because of the cumulative weight of their experiences. Our experiences both in and out of the fire service lay the foundation for how we respond to stress. One of our goals is to take the experiences we have and filter them in a healthy, productive way that allows us to grow.

Your life stance can be the religious, spiritual, or philosophical system, or combination of them all, that you live your life by. It may be something that you were raised with, or it may be something you have chosen for yourself. Regardless of how you came by your worldview, you have one and it is uniquely yours. Understanding how that foundation affects your thoughts and your response to stress enables you to choose how to use that system to live a healthy lifestyle. There is not too much talk of life stances in the typical firehouse kitchen. It's a topic that carries a lot of potential to offend if it is addressed callously, and as such, it tends to make people uncomfortable. However, assuming that you are a well-adjusted person who believes that it is wrong to intentionally harm others, it does not much matter whether you follow one of the mainstream religious paths (Christianity, Judaism, Islam) or a religious tradition that is less commonly found around the firehouse (Hinduism, Shinto, or any of the Native American systems). It does not matter whether you follow Wicca, Druidism, Kabala, or Santeria, or are an agnostic, an atheist, a secular humanist, or a cynic. In short, regardless of how you view the world and your place in it, that view colors the way you will deal with the stress of responding to emergencies.

Acute stress and posttraumatic stress disorder

The mental challenges that we find on the fireground come from several sources. First, anxiety is brought on by behaving in an abnormal fashion. It is not "normal" to run into a burning building, and our brains recognize this. Second, stress is associated with confronting "traumatic" circumstances. I use the word "traumatic" in quotes because most of us will *not* be traumatized by the things we see on the fireground, but it is the adjective many people use to qualify the kinds of events that we are called upon to manage. The reality of being a fire service warrior is that we will deal with people in their worst moments. We are faced with the dead and the dying, and we have to untangle broken, mangled, and maimed people. We have to deal with the family and friends of these patients, who are suffering their own emotional turmoil. It is imperative to develop a means of forging mental readiness for these potentially difficult situations so that we do not become traumatized.

Preparing for the emotional challenges of firefighting is an important aspect of mental readiness. From personal experience and nonscientific observations of literally thousands of firefighters, police officers, and military members around the world, I have come to the conclusion that how an individual views him- or herself is the key factor in coping with the emotionally stressful elements of our profession. We each view life through a filter that gathers outside information and compares it to our view of the world. We engage in a mix-and-match game to see how what is unfolding compares to our experiences. One element that has a direct bearing on our capacity to avoid being traumatized is our ability to dispassionately assess and respond to the emergency in front of us. If the filter we look through has a mixture of images from our home life, we will start to mix and match in those images. When this happens we start to become emotionally entangled in the emergency. It is important to remain dispassionate, to avoid becoming caught up in the emotion of the events you are responding to, in order to preserve our capacity for rational thought, size-up, and decision making.

In the program *Warrior Resiliency and Thriving*, Major Thomas Jarrett makes the observation that while all warriors will not be traumatized by their combat experiences, approximately 70% of our brothers and sisters in the military will experience some form of "combat operational stress" (COS)[21] In the case of military warriors, COS is seen to manifest itself in an acute way. COS symptoms may include anxiety, hyperarousal, fatigue, sleep disruption, irritability, anger, conflict, cognitive distortions, reexperiencing the event, and avoidance. We see these same acute symptoms in our fire service warriors. There are many incidents that can cause an onset of an acute stress reaction. "Kid calls," incidents involving children, are perhaps the most recognized triggers for these acute experiences.

I had an incident when I was a relatively new firefighter–emergency medical technician (EMT) where we were called for a pregnant woman having abdominal pain. I had been an EMT for three or four years, and the department I worked for provided exclusively basic life support (BLS) services. As an EMT, I was often the primary provider for trauma patients, heart attacks, and other relatively serious EMS runs. I felt confident in my skills. On our arrival, the patient said that when she went to the bathroom she felt terrible abdominal cramping and thought that the fetus might have been prematurely delivered. My partner tended to her while I went and fished around in the blood-filled toilet to find the body. I pulled out a very premature but developed fetus. The child was probably 12 inches long and weighed less then a pound. The child was obviously dead, and there was nothing we could do for him, so as my partner and the rest of the crew took the mother to the ambulance, I asked a police officer to find a zip-top bag to place the fetus into to transport to the hospital as well. In the moment, I was sympathetic to the mother and felt a healthy sense of loss about the death of this potential person. Over time, though, I kept coming back to the incident in my mind; I was reexperiencing the event. When we have an acute stress incident, it is not uncommon for us to evaluate if we did our job right; our psyche starts trying to assign blame if the outcome is not a positive one. The thing that I kept beating myself up about was putting the child into a plastic bag. I started judging myself for not being respectful of the child. Obviously there was nothing else in particular to be done. My psyche didn't perceive that I was in anyway responsible for the child's death. It acknowledged that I may have acted without due regard for this fellow human being and it started acting critically. It took a lot of soul searching to get the acute emotional response in check. I realize now that it was a perfectly reasonable experience to have an operational stress reaction to.

A more lasting problem for some responders is post-traumatic stress disorder (PTSD). According to the Mayo Clinic, PTSD is "is a type of anxiety disorder that's triggered by a traumatic event. You can develop post-traumatic stress disorder when you experience or witness an event that causes intense fear, helplessness or horror."[22] For many people, an unknown and unknowable event triggers a response, because they were unable to prepare for it. Although many emergency responders have heard of PTSD, a complete understanding of the condition may not exist.

PTSD is considered a diagnosable condition and appears in the *Diagnostic and Statistical Manual of Mental Disorders* (4th ed., text rev. [*DSM-IV-TR*]). The clinical definition of PTSD, as stated in the *DSM-IV-TR* is as follows:

> The essential feature of Posttraumatic Stress Disorder is the development of characteristic symptoms following exposure to an extreme traumatic stressor involving direct personal experience of an event that involves actual or threatened death or serious injury, or other threat to one's physical integrity; or witnessing an event that involves death, injury, or a threat to the physical integrity of another person; or learning about

> unexpected or violent death, serious harm, or threat of death or injury experienced by a family member or other close associate (Criterion A1). The person's response to the event must involve intense fear, helplessness, or horror (or in children, the response must involve disorganized or agitated behavior) (Criterion A2). The characteristic symptoms resulting from the exposure to the extreme trauma include persistent reexperiencing of the traumatic event (Criterion B), persistent avoidance of stimuli associated with the trauma and numbing of general responsiveness (Criterion C), and persistent symptoms of increased arousal (Criterion D). The full symptom picture must be present for more than 1 month (Criterion E), and the disturbance must cause clinically significant distress or impairment in social, occupational, or other important areas of functioning (Criterion F).[23]

What is unique about PTSD is the need for certain elements to be present, in particular, that the "response to the event must involve intense fear, helplessness, or horror." Only if any of these emotions are present during the event response will you be at risk for PTSD. In addition, the "full symptom picture must be present for more than one month." If any of these symptoms occur once, you do not necessarily have PTSD, but you may be experiencing acute occupational stress. We can reexperience a critical incident without having PTSD. If fact, many of us will intentionally "watch the video" we captured in our mind of these incidents so that we can examine our actions and try to learn from the outcomes.

However, it is important is to recognize the warning signs of both COS and PTSD and know that you might experience one of these stress reactions. As fire service warriors, we cannot avoid "direct personal experience of an event that involves actual or threatened death or serious injury." The places where the threat of death or serious injury exists are where we work. So we must develop a means of controlling the response to the exposure.

The effects of acute stress are short lived and manageable either by the individual or though the help of the buddy system or a mental health professional. In contrast, PTSD is a persistent disturbance of functioning that lasts a month or more. Most of us will not develop PTSD. It is more likely that we may experience some form of acute operational stress that is similar to COS. The fire service has embraced various approaches over the years to help confront the acute affect of dealing with the emotional stress of emergency operations. For many years, the critical incident stress debriefing (CISD) method was used. Current methodology is geared toward a concept known as psychological first aid (PFA).

Psychological first aid

PFA has come become accepted practice for caring for the victims of critical incidents, and it has been applied to both civilian victims and emergency responders. The National Child Traumatic Stress Network and the National Center for PTSD have published the *Psychological First Aid Field Guide*, currently in its second edition.[24] PFA "is designed to reduce the initial distress caused by traumatic events and foster short-term adaptive functioning and coping."[25]

PFA is a way of dealing with the acute effects of a recent critical incident that may be the cause of psychological stress. The objective is to make people aware of resources that are available to them and to ensure that their immediate needs are taken care of. The stated goal of "adaptive functioning and coping" is the prime focus. People who experience a critical incident, be they civilians or emergency responders, may have acute stress reactions. Helping these people through the initial stages of coping in a positive manner will help prevent long-term effects and the onset of PTSD.

In keeping with Maslow's hierarchy of needs, PFA is geared toward individuals' needs in a similar manner. We all need to have basic physical needs met first: food, water, and shelter. Until those needs are met, we cannot begin to address anything else. That is why the initial focus of PFA is to help people take care of their immediate needs. Once our physical needs are met, we can focus on safety: of ourselves, our families, and our possessions. After addressing physical needs and safety, we can begin to move into higher levels: belonging to a group (humans are social beings), developing self-esteem, and, finally, being self-actualized.

One of the differences between PFA and CISD is that PFA acknowledges that most of us have the strength and resiliency to process these traumatic events and manage our responses without needing to be debriefed. We take care of the physical and safety needs of victims and allow them to process their emotions. We ensure that they are aware of the professional resources available from mental health professionals or spiritual providers, and we provide them with a sense of belonging.

While debriefing in the sense that it has been conducted for emergency responders has fallen out of vogue to some extent, there is still value in the concept. The purpose of the debriefing should be to offer responders a chance to fill in the blanks about what happened at the critical incident. The fireground is both dynamic and geographically larger than what any one of us can see at one time. This leads to gaps in our awareness of what is occurring anywhere other than right in front of us. Uncertainty can lead to self-doubt, and self-doubt can lead to self-blame. Let's consider for a moment an LODD situation; an event that certainly has the potential to lead to an acute stress reaction or PTSD.

Using a hypothetical but plausible situation, let's say that we arrive on the scene of a fire in an occupied two-story frame house, 25 feet wide by 50 feet deep, with heavy fire in the first floor showing from the C/D corner. You arrive on the first due truck assigned to the vent crew. The engine is leading out to the front door, and the inside crew is moving to force entry. There is a woman standing on the front lawn pointing to the second-floor front window screaming that her infant is in the crib in that bedroom. The inside crew has the door open and the engine is pushing down the hall. You and your partner move immediately to conduct a vent, enter, and search (VES) operation. While you are throwing a 24-foot ground ladder to the front porch roof, you see dark brown to black smoke exiting the front door under pressure and pushing across the front porch roof in a laminar flow. You climb the ladder and vent the window from the front porch roof. As you vent the second-floor window, the first floor flashes over. Air horns are sounding, and people are bailing out of the first floor. You and your partner abandon your assignment and head to the front lawn for accountability. Members of the engine are lying on the front lawn, burned and awaiting EMS. You are trying to find your officer and his or her partner from the inside team. Maydays start coming over the radio that they are lost in the building. Command deploys the RIT team, upgrades the alarm, and orders companies to start pushing into the building once again. This effort is unsuccessful. Your company has just lost two members in the line of duty.

Once the immediate needs of the surviving members are taken care of and the process of PFA has begun, members still need to be debriefed about the fire in order to reconstruct an account of what occurred. Imagine if the story became that the building flashed because you vented the second-floor windows! Every normal human being is going to look to blame these deaths on someone or something. If you become the focus of that blame, wouldn't you want a debriefing session where you could articulate what you saw and did, and also hear what others saw and did? The debriefing process can allow our members to benefit from Dave Grossman's often stated concept that "pain shared is pain divided."

Resiliency—avoiding intervention

Using PFA to manage an acute case of operational stress and seeking professional help to treat a condition like PTSD are interventions that can be done once a traumatic event has occurred. Intervention is critically important. You would not hesitate to get antibiotics if you came down with strep throat, and you should not hesitate to seek intervention if you have a negative cognitive or emotional experience.

After-the-fact intervention should not our sole means of confronting the incidents that may bring on an acute stress reaction. Ben Franklin, one of the fathers of the American fire service, once said, "An ounce of prevention is worth a pound of cure." Much like developing physical readiness though fitness training programs, putting in the time and effort to develop our mental and emotional fitness is well worth the investment, so that we can prevent the stress reaction to begin with.

A word often used to describe this emotional fitness is *resiliency*. As fire service warriors, we want to develop resiliency so that we can thrive under the mental stresses we experience. Resiliency is not a new concept; it has been explored as a key skill set for warriors for generations. *Resiliency* is defined as the "ability to recover readily from illness, depression, adversity, or the like" and also as "the power or ability to return to the original form, position, etc., after being bent, compressed, or stretched; elasticity."[26] When we are exposed to the types of traumatic events that are typical of emergency responses, we bend under the emotional load. This is perfectly normal. Our capacity to bend without breaking is directly related to our resiliency—our ability to spring back to normal.

The idea of resiliency as a noble quality for humankind dates back to the pre-Christian era and has been preached by philosophers for millennia. One school of thought that is geared toward developing the resilient mind is that of the ancient Stoics. Examining Stoicism, we find a "mental fitness program" that can help us develop the resiliency necessary to manage the stress of emergency response and return to our original form, or experience post-traumatic growth that strengthens our coping skills.

Stoicism

The Stoic school was founded by the Greek philosopher Zeno in the early part of the third century of the pre-Christian era. The school of thought takes its name from the Greek word *stoa*, or porch, where Zeno and his followers would meet to discuss ethics, logic, and the physics of the day. The motto of Stoicism is to "live in accord with nature." This motto didn't imply that the people of Greece, and later the Roman Empire, were to turn away from the technological advances of the day, but instead that people cannot be truly balanced if they try to live contrary to the natural laws of the universe. That is, we all die, we do not get to choose our predisposition to disease, and so forth.

The ancient Stoics were a group of philosophers who lived during the period from roughly 300 BCE to 200 CE.[27] Stoicism forms the basis of many Christian concepts about the ability of humans to bear up under stress, and it was well known in the Islamic East as well. Stoic scholars have been quoted by many religious leaders, and the principles of Stoicism can be used alongside an individual's spiritual system. Stoicism was and is a living doctrine. It was not handed down by Zeno as a whole, never to be amended. Over the five centuries that are considered the high age of Stoicism, many teachers and authors made their mark. One of the single most revered thinkers and teachers of the Stoic school of thought was Epictetus. Epictetus was born around 55 CE in the Greco-Roman town of Hierapolis.[28] Epictetus may be the most referenced Stoic sage. His teachings were recorded by his student Arrian, who gathered the lectures of the great sage into eight books he labeled the *Discourses*. He further went on to condense much of this thought into a volume titled *Enchiridion*, meaning "ready at hand" or "handbook." History recognizes Epictetus as the author of both the *Discourses* and the *Enchiridion*. Arrian is acknowledged for transcribing the words, and as he stated at the opening of the *Discourses*, "I have not composed these words of Epictetus as one might be said to 'compose' books of this kind . . . But whatever I used to hear him say, I wrote down, word for word, as best I could."[29]

The thoughts of Epictetus and later of Marcus Aurelius, the Roman emperor who authored the Stoic text *Meditations* (his journal while on military campaigns) have a lot to say to the modern warrior about living a life in balance (fig. 3–2).

Fig. 3–2. Roman emperor Marcus Aurelius was a warrior and a philosopher. *Meditations* is a record of his thoughts while on campaign across Europe. (Photo copyright by Alexey Arkhipov, www.Dreamstime.com, used with permission.)

Epictetus said in the *Enchiridion*, "Some things are in our control and others not." He went on to say, "Things not in our control are body, property, reputation, command, and, in one word, whatever are not our own actions."[30] His meaning is that we do not get to choose if we will be 6 feet tall or 5 feet tall; we do not get to control if we are born into wealth or poverty; we have no say in how others will interpret our actions. What we do control are the choices we make and how we will respond to the actions of others and to the circumstances we are faced with.

Lowercase stoicism, also defined "indifference to pleasure or pain,"[31] has been practiced by warriors for thousands of years to deal with stressful situations. Indifference does not mean that one does not experience pleasure or pain, but is rather the idea of not swinging too wildly in either direction. The idea of ancient Stoicism, which has carried over into present-day "generic" stoicism, is to accept that there are things we cannot control and to strive not be affected by them. There are many modern practitioners of Stoic thought. Vice Admiral James Stockdale (US Navy Ret.), a Medal of Honor recipient (who is likely best known as Ross Perot's running mate in 1992), may be the modern generation's Stoic sage. His lectures on the impact of his Stoic learning have been captured in "Courage Under Fire: Testing Epictetus's Doctrines in a Laboratory of Human Behavior"[32] as well as in "Stockdale on Stoicism I" and "Stockdale on Stoicism II."[33] Stockdale was a career naval aviator who was shot down while flying an A-4 Skyhawk in April 1965. He was the wing commander of the aircraft carrier *USS Oriskany* and became the highest ranking pilot POW captured. His grounding in Stoicism enabled him to bear up under repeated torture and years of solitary confinement, all while leading his fellow prisoners.

How can we apply Stoicism to our duties as fire service warriors? Let's say you are assigned to the first due truck company on the scene of a structure fire in a single-family home. In the bedroom just off the fire room you find the unconscious body of a seven-year-old girl. You notify command and remove her from the building to a waiting EMS unit. After the fire you find out that she was pronounced dead at the hospital. How will you choose to respond? Some people will shrug the situation off as "unavoidable" or "not my fault"; others will experience acute operational stress because of the situation; and some may develop the long-term disruptions seen in PTSD. How you respond, with resiliency or with acute stress, will be influenced by the mental readiness you have forged.

So, once again, how would you respond? Be honest with yourself. Take a moment and think about finding yourself in this circumstance. If you carried this lifeless child's body out of the building, how would it affect you? Epictetus wrote: "Men are disturbed, not by things, but by the principles and notions which they form concerning things. Death, for instance, is not terrible; else it would have appeared so to Socrates. But the terror consists in our notion of death that it is terrible."[34] In other words, the death of the girl should not affect you, unless you had personal control over it. Did you perform your job within the scope of your training and to the best of your ability? Were you physically and mentally prepared for your assignment? Did you know your riding position, tool assignment, and role based on your department's standard operating guidelines? If you can answer "yes" to these questions, then there is little likelihood that you had control over any of the circumstances that led to the young girl's death.

The zealous Stoic would say that you should be unaffected by this; it was not within your control. The ideal of Stoicism is very different from the reality of human emotion and interaction. Anyone who is emotionally healthy will be affected by the death of a seven-year-old. However, *affected* does not have to mean *traumatized*. We have already discussed acute stress reactions and learned that we can experience those reactions without being affected by PTSD. Even if we do not experience any of the aforementioned acute stress symptoms such as anxiety, sleep disruption, anger, or avoidance, if we are normally psychologically adapted, we should experience some feeling of sorrow or grief. Even though children die every day, an emotionally healthy person may see this as a bad or unnatural occurrence. The moderated emotion would be *upsetting*. The reason for this is we see children as being innocent, incomplete, and full of potential. The death of a young child seems wrong to us because that child has not had a chance to become something greater. These are all reasonable reactions.

Our objective is to develop a "dimmer switch" that can help us control our emotions, so that we do not become emotionally handicapped by our reactions to the daily horrors we face. In the world of psychology and psychotherapy, that switch is referred to as an "adaptive emotion." When we combine adaptive emotions with a moral purpose like our virtues of honor, courage, and duty, we can find a rationality that allows us to govern our perceptions and right actions. We can choose to live in a manner that allows resiliency to flourish.

Fire service warriors will probably have an affinity for Stoic teachings, even if they have not spent hours pouring over the works of long dead Greeks and Romans. Stoicism can be seen as the "suck-it-up" philosophy, described in chapter 2. Life is hard. Not, "I'm going to have to wait and see if I get my Christmas bonus so I can afford the swimming pool I want" hard, but "Please, God, let the doctors figure out what is wrong with my child" hard. Far too many people have adopted an approach to life that is based on the assumption that luxury and comfort are entitlements. They aren't. The old saying, "there are only two guarantees: death and taxes," still holds true.

Why does this matter to the fire service warrior, or even to the firefighter who is just showing up to collect a paycheck? Simply put, it matters because each one of us who gets on a rig and responds to a neighbor's call for help is going to have to process a host of emotions. We will have to confront the tragedy of our fellow human beings being burned, maimed, and killed. We will face scenes of domestic abuse, child abuse, and violence against innocents. Being witness to all of these events can bring about upsetting emotions and challenge us psychologically. We can become burned-out, shell-shocked, or just jaded to the world around us.

Philosophy was originally viewed as medicine for the soul, and as such, it was seen as keeping one healthy and in balance. I remember two key phases that I heard from my parents thousands of times growing up, "It will heal before you're married," and "At least you don't live in Bosnia" (the latter comment was made during the years of civil war that gripped Bosnia.) I have come to understand those two phrases as laying a foundation for the stoicism I have strived to practice in my daily life, long before I ever read Epictetus.

Choice and self-control

If you ask someone, "Why were you so anxious?" or "How could you stay so calm?" most people will say that they just react to a situation and they cannot do anything about it. They have reacted without a conscious choice. This is where the lessons of the Stoics can help us develop a means of controlling how we respond to emotionally challenging situations. This concept relates directly to our values of self-control and self-confidence, and regardless of whether we learned those values as children, we can choose to embrace them as adults. We can choose how we will respond. The choices we make in response to the events that impact us, or the way we are treated, are 100% within our control. We can choose to relinquish control over our thoughts and emotions by allowing ourselves to react to the things that others do or say, but that is a choice. Rather than simply react, we as individuals need to respond to the "slings and arrows of outrageous fortune" in a thoughtful and constructive manner.

At some point in each of our lives, we have heard a coworker, friend, lover, parent, or partner say, "You make me feel (fill in emotion)," and we have probably said it ourselves. The reality is that no one can make us feel anything, nor can we make anyone feel a particular emotion. I can make you feel pain if I pick up a baseball bat and hit you in the head, but I can't make you feel worthless as a person. We choose to feel hurt or sad or worthless based on the credence we give the words, or actions, of another person. In the same way, we choose to either be resilient under the stress of our occupation or allow the weight of those experiences break us. This is why rationality is critical. We need to maintain a rational view of the way others treat us if we are to avoid relinquishing control of our emotions. If we allow outside factors or people to hold sway over our emotions, to the extent that we choose to view ourselves in an unfair negative light, we will relinquish a tremendous amount of personal power, and abandon our self-control.

When we feel as though we do not have control over a situation, we are more likely to be filled with self-doubt. This lack of self-confidence can have dramatic consequences when we try to apply the survival skills we have learned. For example, recall the earlier discussion about the effects of anxiety-induced elevated heart rates. Remember that "tactically, hypervigilance results from the perception of a threat and [your] lack of confidence to control the threat."[35] So, if you are prone to relinquish control over your emotions to another, you are undermining your own self-confidence. That lack of self-confidence may bring about an increased state of anxiety that could lead directly to your inability to save yourself or someone else.

Choosing how you respond to an individual's words and actions directed specifically toward you is one step on the road of mastering your self-control and self-confidence. Our example of the young girl fire victim is the next step in choosing how we will respond. This is a circumstance where responding in a sympathetic manner is appropriate: you can acknowledge that the family of the girl must be devastated, while accepting that you are not responsible for her death. You can even have true empathy and experience a transient feeling of grief. The key is to keep that emotional experience proportional to the event. You did your job to the best of your ability to rapidly locate and remove her from the structure. You transferred her to the best available medical facility. You acted in accordance with the accepted practices of your organization and within the scope of your training. You can choose to feel personally responsible, or you can accept that people die everyday. Some people die in horrible ways like suffocating in a fire; others peacefully in their sleep. Some people die as children; others live to be over a hundred years old. You have no control over who dies when, unless you specifically commit an act that kills them.

This talk of Stoicism and resiliency all boils down to how you choose to look at the world around you and how you let it affect you. Before I became acquainted with Epictetus and Aurelius, I met my wife, Heather. On our first date I saw a picture of Heather with golden blond hair. The woman I was out with was a brunette. I've always tried to investigate without offending people, so I asked her, "Are you naturally blond or brunette?" Her response: "Both." Well, out comes the smart-alecky firefighter comment from me, and I ask her, "What was it, the cancer?" Of course, she replied, "Yes." At the time we met, Heather was a two-time survivor of a rare form of cancer, mesenchymal chondrosarcoma. She had been through surgery to remove a tumor from her skull base, and three years later, as a result of her second occurrence, she had chemotherapy and proton beam radiation treatments.

Pretty quickly after we met, we realized that we had a common view point. We do not obsess about things we cannot control. We believe in living lives of purpose (Heather is a first grade teacher in a Catholic school). We live each day with the liberating experience that none of us know just how much time we have left. When we got engaged six months after we met, the reasoning was simple, "I run into burning buildings for a living, and she's had cancer twice—what are we waiting for?" We were married three days before the anniversary of our first date.

On the day of our second wedding anniversary, Heather had a routine follow-up CT scan. She went for the results on a day I was at work. The phone call I got from her after the appointment was direct, "It's back." For those who have experienced it, you know that hearing someone you love is in harm's way is a kick in gut. We moved past being worried and quickly got to work. We researched the newest treatments, set up appointments with neurosurgeons and otolaryngologists and navigated the logistics of insurance referrals and estate planning. Her doctors were confident, but we both knew that the chances came down to a coin flip. She had already had massive cranial surgery, and she had been treated with high-dose radiation. Complications in surgery or delayed wound healing were certainly possibilities. So, two nights before she underwent surgery, we sat down and came up with a list of songs she wanted played at her wake (if needed), drank a bottle of wine, and cried our eyes out. It was the most liberating thing I have ever done. It was a chance to acknowledge the real risks and fears we faced as a couple, and rather than worry, we processed and controlled what we could.

In October 2009, Heather was admitted to the Loyola University Medical Center in Maywood, Illinois, to undergo a massive surgical resection of the tumor on her skull base. I knew I was going to spend 12 or more hours sitting in a waiting room waiting to hear how everything went. It was like being on a horrible international flight without a bar cart. On that day I wore a T-shirt that had special meaning. It was a Forged brand Invictus T-shirt.[36] The Forged company is owned by former Navy SEALs, and the Invictus shirt has written on it the "Invictus" poem written by William Henley in 1875. I've since learned that "Invictus" is considered the quintessential Stoic poem. James Stockdale, in "Courage Under Fire," relates his experience with the poem, which a fellow prisoner scratched onto a piece of toilet paper using a rat's dropping for ink. The night when Heather came out of surgery, she lay in an intensive care unit (ICU) bed, intubated, and in the twilight of Versed (midazolam). I kissed her forehead, stroked her bandaged face, and reminded her of her strength and to remember the words that had gotten me through the day:

Out of the night that covers me,
Black as the pit from pole to pole,
I thank whatever gods may be
For my unconquerable soul.

In the fell clutch of circumstance
I have not winced nor cried aloud.
Under the bludgeoning of chance
My head is bloody, but unbowed.

Beyond this place of wrath and tears
Looms but the Horror of the shade,
And yet the menace of the years
Finds, and shall find me, unafraid.

It matters not how strait the gate,
How charged with punishments the scroll,
I am the master of my fate:
I am the captain of my soul.

—*"Invictus," William Henley, 1875*

We do not get to choose whether we will be well or sick; we choose whether we will suffer. As Epictetus tells us in the *Enchiridion*, "Sickness is a problem for the body, not the mind—unless the mind decides that it is a problem."[37] In the same way, we have the power to choose how we will respond to the stresses of our lives outside the fire service and the occupational stresses we must face.

Mastering choice and self-control are the ideals of the Stoic. As Cicero said in the *Tusculan Disputations*:

> That person, then, whoever it may be, whose mind is quiet through consistency and self-control who finds contentment in himself, and neither breaks down in adversity nor crumbles in fright, nor burns with any thirsty need nor dissolves into wild and futile excitement, that person is the wise one we are seeking, and that person is happy.[38]

The Stoic view is that happiness is found in living a life of virtue. If only it were that simple. Living a life of virtue is challenging. We all have the part of our psychology that is rooted in "I want." Having a virtuous character could be seen as moderating the selfish aspect so that we take what we need to thrive, but not so much that we are acting out of pure self-interest.

The Ready Position

To be in the ready position you must master both your physical and mental condition. Mastering these two primary components of your personal condition requires thoughtful analysis of yourself. Carl Jung is credited with saying, "One does not become enlightened by imagining figures of light, but by making the darkness conscious." It's a quote I live my life by. We must look into the things that we do not yet understand if we are to improve. This applies to how we approach both our physical and mental readiness.

You have to understand your strengths as well as your weaknesses, in the context of the challenges that you will confront on the fireground. Once you understand your personal condition, you can see where you are along the path to the ready position. Then the real work begins. You will not get to the ready position by working on your strengths, but by focusing on your weaknesses. Diligent effort, focus, and study will prepare you for the physical and mental challenges you will face daily on and off the job.

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4

The Fundamentals: Tactics, Techniques, and Guidelines

We do not rise to the level of our expectations. We fall to the level of our training.

—Archilochus, Greek soldier and poet, ca. 650 BCE

The fireground is a dynamic, threat-filled environment. If we have embraced the virtues of honor, courage, and duty, then we will strive for the physical and mental readiness to thrive in the face of the physiological and psychological challenges that are common on the fireground. All of these elements must be present before we ever show up and put our gear on the rig in the morning. Our next step is developing an understanding of the techniques, tactics, and procedures that allow us to thrive on the fireground, and striving to master those skills.

We need to have a common language when it comes to fundamental operations. First, we look at the critical tasks that are typically divided up functionally as engine company operations and truck company operations. With the key functions of the fireground addressed, we explore how critical situational awareness (SA) is, the effects and outcomes of disorientation, and the importance of implicit coordination, or team SA. Once we have outlined the key components of engine and truck operations and the importance of SA and team SA, we can tackle the role of standard operating guidelines (SOGs), and how they serve the function of an Incident Action Plan (IAP).

This book is not about strategy and tactics. I'm not going to make a case for how you should set up your engine company, what nozzles you should be carrying, or if high-rise packs should have 1¾- or 2½-inch hose. I'm not going to argue for a particular method of triaging a building when performing truck company operations. There are some amazing fire service leaders who have tackled these topics. Books that I think each of our fire service warriors should study are listed in Appendix A. When it comes to tactical deployment on the fireground, your agency needs to make those decisions based on your local geography, department staffing, and your particular needs and priorities. Ultimately, everything that we are capable of doing, or not doing, comes down to the priority that elected officials place on fire protection and the budget they dedicate to achieving the goal of a fire safe community. We do not get to set policy for how our city, village, county, or district will appropriate and spend tax dollars. As fire service warriors, we must educate these leaders so they can make good decisions, and then we must go and do our best with the resources we have.

Regardless of the particulars of budgets, staffing, equipment, and call volume, there are certain priorities and actions of the fireground that are universal. We have to save lives and protect property. It cannot be stressed enough that our priorities are to save lives and protect property from unrestrained fire. This essential mission forms the backbone of our general strategic objectives.

Strategic Objectives

Incident objectives drive everything that we do on the fireground. There are many ways to design or establish objectives. One recognized method taught in the fire service and advocated in the National Fire College Command and General Staff Course is the SMART method. With the SMART method, objectives are specific, measurable, achievable, realistic, and time sensitive. In the planning process for an incident-specific IAP, these objectives are established by the incident commander. For example, if we are faced with a large building collapse and fire brought about by a natural disaster, our SMART objectives might be the following:

1. Deploy a fire-suppression group to extinguish the fire.
2. During the operational period, perform a reconnaissance of the collapsed area by technical rescue team.
3. Establish a triage, treatment, and transportation site outside the collapse zone to manage victim treatment.

These are examples of specific, measurable, achievable, and realistic objectives. They meet the requirement of being time sensitive when we address the operational period.

For template IAPs/SOGs, the strategic objectives will be established by the fire department leadership ahead of time, rather than on the incident scene. It is important that our SOGs address strategic objectives in a general manner. If we insist on writing very specific objectives into the guidelines, we run the risk of establishing inflexible procedures that may inhibit rather than help our tasks at the fireground. We must be able to take the general strategic guidelines and tailor objectives on scene, so that the specific tactical functions can be adjusted based on conditions at the incident scene. Rather than providing the specificity of an incident objective, the strategic objective exists to convey a *commander's intent*. Commander's intent is a concept that comes directly from military command and control. It is the idea that a commander gives direction for what is to be accomplished by the combined arms team.

When the US military developed the plan for the liberation of Kuwait in 1990, General Norman Schwarzkopf did not direct the explicit actions for movement of each rifle squad. He issued a statement of intent to the staff responsible for planning the engagement regarding the general objectives and scope of operations. Subordinate leaders were then responsible for developing the specific objectives to achieve their missions within the framework of the overall intent.

When we are developing SOGs, it is wise to provide for a general approach in the form of strategic objectives. In general, our strategic objectives follow a logical system:

1. Save life.
2. Stabilize the incident.
3. Conserve property.

These objectives are easily remembered, address our priorities for managing an incident, and are general enough to allow an incident commander to choose a specific plan. Our strategic objectives provide general guidance for fireground operations. We achieve our strategic objectives through our operational priorities.

Operational Priorities

Before we describe the roles, responsibilities, and assignments on the fireground, we need to examine the general operational priorities that support accomplishing our strategic objectives. There are a host of theories about the development of operational priorities. One effective way of addressing key fireground operational priorities can be remembered with the acronym SCSC-VEOS:

- Size-up
- Call for help
- Save life

- Cover and contain
- Ventilate
- Extinguish
- Overhaul
- Salvage

Size-up

Size-up is a key skill set if we are going to operate in a relatively safe way on the fireground, and it helps us choose the right operational mode. It is the process of observing conditions and orienting our actions to address the specific fireground situation. Effective size-up is the attempt to synthesize as much information as possible into a coherent whole.

In the *Fire Officer's Handbook of Tactics*, John Norman details the well-known 13-point size-up, which is remembered with the mnemonic COAL WAS WEALTH:[1]

Construction
Occupancy
Apparatus and personnel
Life hazard

Water supply
Auxiliary appliances
Street conditions

Weather
Exposures
Area
Location
Time
Height

The COAL WAS WEALTH model is an effective preplanning tool. Many of these elements can be planned ahead of time and not figured out on the fly at our arrival on the fireground. In general, we should know the weather conditions long before an incident is dispatched. This kind of size-up should be happening from the time you get up in the morning. If you are a golfer, and you wake up in the morning and see that it has rained and there are puddles on the sidewalk, you know that the course is going to be spongy and the ball is not going to roll as much. Are you thinking about the weather as you are driving in to the firehouse? Do you try to gauge how will it affect driving conditions, laddering, and fire development? You should not be surprised by the possibility of wind-driven fire conditions if, as you drive to the firehouse, you see the trees bending or the flags whipping straight out.

In the same way, the general factors of water supply should be a known quantity. Do you have hydrants in your still district, or do you have to conduct drafting operations? What kind of pressure do you get? These are size-up considerations that can be generally known before you ever hang your coat on the side of the rig.

The specifics of water supply are the responsibility of the engineer (or water supply group supervisor) when you get on scene. You should also know what auxiliary appliances are on the buildings in your still alarm district and second due area, and what your expected first-alarm apparatus and personnel will be. There will be days where the first due engine is tied up on another run, the on-call department has to roll out with two people because of the time of day, or another unplanned event disrupts our expected response. We have to be ready to adjust to the ground truth at any given point.

Using the COAL WAS WEALTH model for preplanning and for expanding incidents is valuable, but for first due assignments, it can become a staggering amount of information to try and assemble and may lead to the dreaded "paralysis of analysis."

When we conduct initial size-up, we want to limit ourselves to a certain extent and assess the most critical pieces of information first. There are some things that we must size up when we arrive on scene, such as building construction and size, fire location and development, and smoke conditions. These elements affect every one of us.

Building construction has a direct impact on the way fire will spread through a structure and the ability of the structure to withstand gravity while being destroyed. We must have a thorough knowledge of building construction if we are going to have any hope of establishing a relatively safe operation. In the modern age, we have to consider the possibility of lightweight components even in buildings that would be considered ordinary construction. Fire will behave differently in those buildings. The modern trend toward open-floor plans reduces the choke points that can control the spread of heat and flame. Mastery of building construction is critical; if you do not know it, you will be catching lightning in a bottle every time you operate.

The size of the building defines the potential fire load and the problems of getting to the fire. A one-story ranch-style home that is 1,000 square feet poses a different challenge than does a one-story 27,000-square-foot grocery store, and these are both different from an 18-story high-rise with 10,000 square feet per floor. We do not need to measure the building with a tape measure to determine the area that we have to deal with. A quick look should be able to give us a sense of what we may be up against.

Determining the fire location and the extent of development is the next size-up consideration. Regardless of your assignment on the fireground, location (where the fire is) and development (how big it has gotten) will dictate how you will accomplish your fireground tasks. Knowledge of fire behavior is as important as knowledge of building construction. You need to put the fire in the *BAG*—where it's *Been*, where it's *At*, and where it's *Going*. If you do not know these three factors, it is more difficult to find the best way to attack. In *Fireground Strategies*, Anthony Avillo makes it clear: "In fact, the two most critical areas of study for any firefighter or officer are fire behavior and building construction, and the relationship between the two."[2]

Smoke conditions provide much valuable information; not paying attention to these conditions can get you killed just as easily as if you ignored the construction or the fire behavior. The old saying, "Where there is smoke, there is fire," is true, and how that smoke behaves can indicate where the fire is. We do not always have a clear understanding of where the fire is on arrival, but the smoke conditions can give us some important clues. Being able to recognize the likelihood of suddenly-changing fire conditions, such as flashover or backdraft, is a size-up skill that may keep you or your crew from becoming a statistic.

Regardless of your specific fireground assignment, you need to understand the impact of each of the preceding factors. When observing the building, start with the big picture. Lieutenant Frank Ricci (New Haven, Connecticut) suggests a great way to gauge if people really look at the big picture: when you are in the fire building, ask them what color the outside is.[3] If they cannot tell you, they weren't really seeing the big picture. For company officers, these big-picture items form a basis for a good radio report on arrival (figs. 4–1 and 4–2).

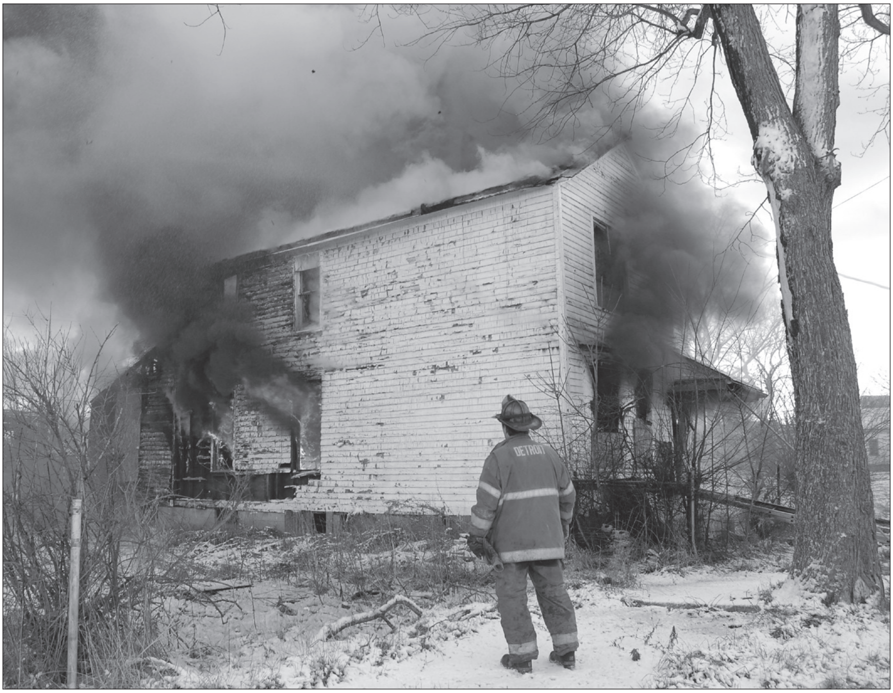
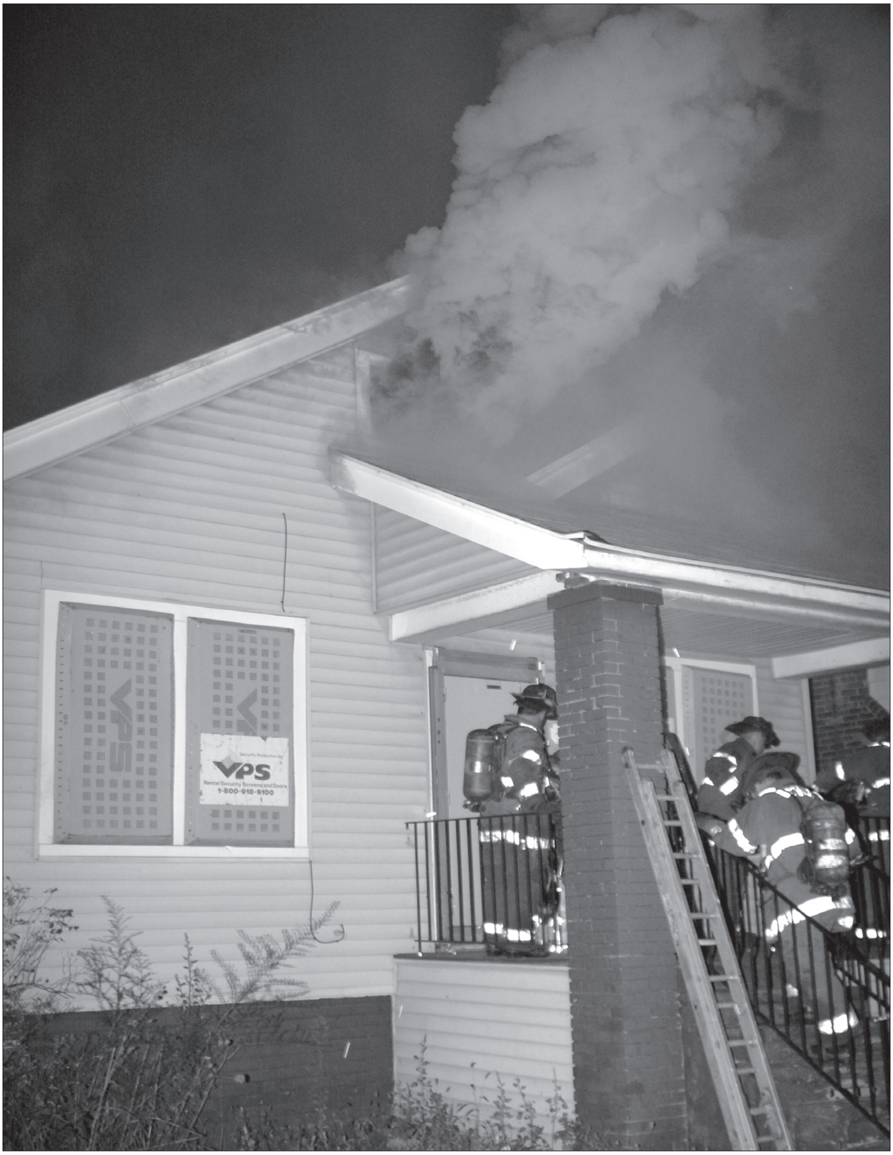


Fig. 4–1. "Engine 3 is on the scene with a vacant two-story frame, 30 by 60, fire in the rear on two floors," is a good initial radio report for this fire. You may add more information based on department policy.

Size-up should move from the general to the specific. The idea is to take the synthesized big-picture information and then begin looking at specific concerns based on your fireground assignment. If you are assigned to the nozzle position of the first engine, you are going to size up differently than the member assigned to the outside vent position will. In the nozzle position, you are going to think about how to get the line between the fire and the occupants. In the outside vent position, you are going to size up the best way to get to the rear of the building. The key is to take the big-picture information and keep track of it while sizing up the specific hazards that affect your assignment.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1-800-918-9100

Fig. 4–2. Radio report: "Battalion 21 is on the scene with a vacant one-and-a-half-story frame. We have dense, hot smoke issuing from the attic window. Companies are in the process of forcing entry. We do not have water on the fire."

Call for help

Calling for help is something that most departments will have to do, even on the initial alarm. Few departments are staffed with sufficient personnel to meet even the minimal requirements spelled out in National Fire Protection Association (NFPA) 1710, *Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Fire Departments*, or NFPA 1720, *Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Volunteer Fire Departments*. While there is no way to say a certain number of people will make the fireground safe, NFPA 1710 addresses critical fireground functions and is worth consideration when you begin to develop deployment plans.

For those not familiar with the specifics of NFPA 1710, it spells out the capability that a department should have on an initial full alarm assignment. The requirement is for 14 personnel (15 if an aerial device is in use) to be on scene for operations "within an 8-minute response time to 90 percent of the incidents as established in chapter 4" (fig. 4–3).[4]

NFPA 1710 Deployment

Command

1 - Incident Commander

Water Supply

1 - Pump Operator

Attack Line

2 - Firefighters

1 - Support Firefighter

Back-Up Line

2 - Firefighters

1 - Support Firefighter

Search Team

2 - Firefighters

Vent Team

2 - Firefighters

IRIC

2 - Firefighters

Aerial Operator (If Used)

1 - Firefighter

Fig. 4–3. NFPA 1710 Recommended deployment of personnel

These numbers are minimums that try to ensure a relatively safe response to a nominally sized residential structure fire, but they are not sufficient for operations in larger structures or in commercial buildings (fig. 4–4).

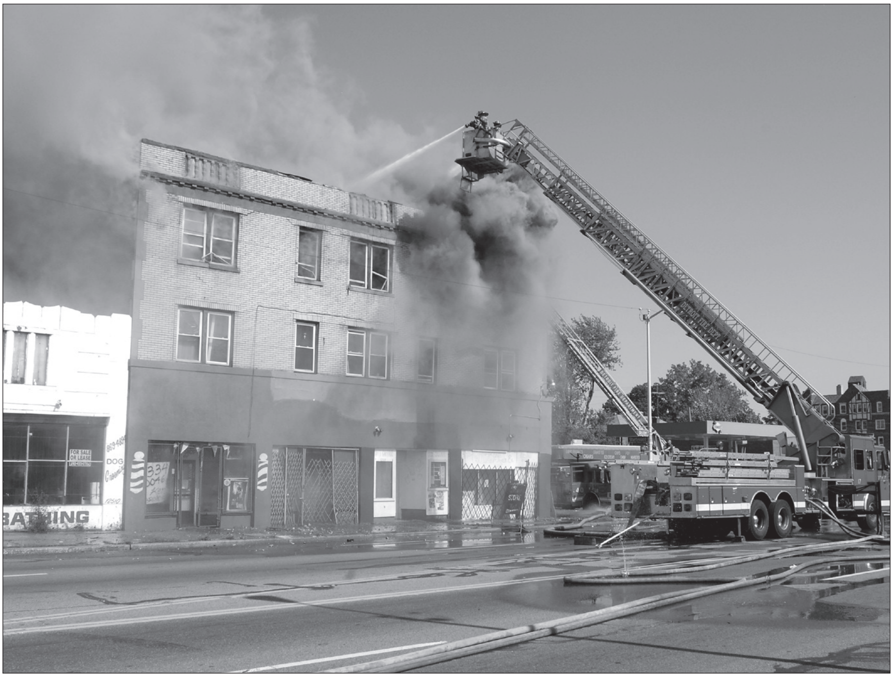

Fig. 4–4. You are not going to save lives, extinguish the fire, and perform salvage and overhaul on this fire with only 15 people.

Consider the Chicago Fire Department response. A reported fire calls for two engine companies (with five members), two truck companies (with five members), and a battalion chief (one incident commander). That is a total of 21 members arriving in 4 to 6 minutes. For target hazards like hospitals, theatres, and schools, the norm is four engine companies, two trucks, and a battalion chief. In the event of a working fire, these responses are upgraded to ensure adequate response for rescue, rapid intervention, emergency medical services (EMS), and additional command officers.

In suburban or rural areas where two- and three-person engine companies are the norm, and one- and two-person truck companies are not unheard of, there must be a way to get more people to the scene. There needs to be enough people on scene to control the building and extinguish the fire. This can be through a box alarm system, such as that commonly found in larger cities, or through individual mutual aid agreements. The objective is to get a sufficient number of companies on the scene, rather than concentrating on the number of apparatus (NFPA 1710 specifies that a company shall have at least four members). The total linear footage of hose and ground ladders on the scene does not have as much impact on the fireground as having a sufficient number of trained personnel.

Save life

Saving lives is what it all comes down to for the fire service warrior. When we examine this goal, we need to consider that it can be accomplished in several different ways. There is the traditional function of rescue, but saving life can also include removing people from the fire building or from exposures, or getting a hoseline between the fire and the victim. Rescue involves removing someone directly exposed to the fire or products of combustion. The occupant hanging out of the window with smoke pushing out needs to be rescued. The person on the floor below the fire, or remote from the fire area, needs to be removed. We must triage the building to determine our rescue priorities and those persons who need removal.

Perhaps the best way to accomplish the operational priority of saving life is to put the fire out. Put simply, we can save lives by either removing the victim from the danger or removing the danger from the victim. Putting the fire out eliminates the threat to a building's occupants, occupants of any exposure buildings, and to the crews operating at the scene. It is worth remembering that many times the only life-safety hazard we will have in a burning building is when we commit to the interior. We will conduct interior operations in many situations to save property, but we must account for the life safety of the firefighters on scene. We do this by establishing rapid intervention.

In the event that the deployment of an initial rapid intervention crew (IRIC) or a full rapid intervention team (RIT) is not addressed specifically in department policy, it should be addressed under the operational priority of saving life. How you implement the IRIC must be left up to local department capabilities; however, it must be provided for before we commit to the IDLH (immediately dangerous to life and health) atmosphere of a compartmentalized building. Providing for a full RIT company on fires that have developed beyond the early growth stage must be mandatory and should be established through a mutual aid agreement if your department is not large enough to accomplish all the fireground tasks and staff RIT adequately.

Cover and contain

Cover and contain is the process of restricting the growth or extension of the fire. We may not be able to extinguish the fire until other fireground priorities (like primary search of the fire area and ventilation) have been accomplished, but we must stop the growth of the fire to gain control on the scene. The National Institute of Standards and Technology (NIST) has modeled fire growth until flashover occurs. In its tests, involving a living room sofa fire, flashover occurred approximately 3 minutes and 19 seconds after ignition.[5] We have to assume that the initial fire room will likely have flashed over prior to our arrival and that the fire will be rapidly extending. If we do not quickly and effectively get water onto the fire, BTU development will rapidly cause the whole of the structure to become untenable for our brothers and sisters and eliminate any chance we have of saving victims still inside. Fires are burning hotter these days, and containing the fire is critical for survivability.

On the subject of cover and contain priority, I agree with Lieutenant Bob Hianik of the Itasca Fire Department, who reminds us to protect the “ways.”[6] The ways are doorways, hallways, and stairways—the readily available paths a fire has to extend and the key choke points where we can cut off its growth. These are the natural chimneys that allow fire and the toxic products of combustion to move through a building. They are fuel- and oxygen-rich routes that the fire will travel, as well as the paths of egress for victims and our route of entry. Rapidly addressing these key paths of fire spread will allow us to reduce the risk to occupants and speed extinguishment.

Ventilate

Ventilation serves two primary purposes: venting for fire and venting for life. Venting for fire is the process of allowing the trapped products of combustion to escape in a controlled manner. By venting for fire, we can channel the movement of these toxic products and gain control of the building. Vertical ventilation is often the most effective way of venting for fire because we create a channel for the smoke and heat buildup through the path of least resistance—upward.

Venting for life is focused on drawing the products of combustion away from potential victims, including the firefighter in the building. Venting for life is an activity that regularly occurs during an aggressive primary search. This may include vent, enter, and search (VES) operations, as well as horizontal venting by the searching crews. Remember that we are visual creatures. Timely ventilation may improve visibility enough to reduce the risk of firefighter disorientation or the possibility of vestibular illusion. Regardless of whether you are venting for fire or venting for life, remember that all ventilation is going to affect the spread of the fire, so be prepared for the fire to grow or change its route of spread if your ventilation tactic occurs before the cover and contain operation has a line on the seat of the fire.

Extinguish

Extinguishment is the key step in achieving the strategic objective of incident stabilization. The cover and contain phase of operations is often a confinement action; that is, we are restricting the fire growth to a particular geographic location. In order to extinguish the blaze, we must have advanced to the seat of the fire and overcome the rate of BTU production.

Obviously, water is our most common extinguishing medium, but we must be familiar with alternative systems such as the compressed air foam system (CAFS), dry chemical agents, and common Class B firefighting foams. The fire attack team must be prepared to get enough water (or agent) on the fire to overwhelm the energy production of the fire load. Consider that most home and office furnishings are now essentially gasoline in a solid state, because of the prevalence of petroleum products and components. These fires burn hotter and develop faster.

Overhaul

Overhaul is the process of opening up the void spaces that are present in nearly every building. Overhaul can be classified as either precontrol overhaul or postcontrol overhaul. Precontrol overhaul is the process of opening ceilings, walls, or attic spaces to control extension while attempting to extinguish a fire. If you have a rapidly spreading attic fire, you may need to get into the building and pull a bunch of ceiling to gain access so that the attack team can cover and contain it. Postcontrol overhaul is the process of systematically opening void spaces to check for hot spots that could develop over time and result in the dreaded rekindle. Postcontrol overhaul is a means of achieving property conservation. When we start conducting postcontrol overhaul, we have to be ready for a sudden change in conditions, because a void that has previously been oxygen deficient but still contains fuel at ignitable temperatures may suddenly get the breath of air it needs to rapidly grow. Because of the dangers of postcontrol overhaul, bringing in fresh crews to replace the initial attack crew may be worthwhile. It is harder to be alert for hazards and rapidly changing conditions when you are tired. Also, because the building is no longer involved in fire, there can be a tendency for the crew members who just finished the fire attack to drop their guard. A similar tendency has been observed in police officers who have been injured or killed postarrest. If we have been engaged in a threatening situation and believe that the threat has passed, we relax our vigilance.

Salvage

Salvage is the process of reducing the destruction to property by fire, smoke, and water. Salvage falls under the strategic objective of property conservation. We obviously have a duty to protect the property of the citizens we serve from *needless* damage. This is an area departments may find challenging to define. What damage is needless and what is not? Not ventilating properly will not limit needless damage, and it will impede the suppression effort and likely lead to additional damage from smoke and water. Conversely, you should not smash out every window in a building because of a dryer fire or burnt food. We need to accomplish our duty while being respectful of the people we serve and their possessions.

Salvage operations should focus on the personal property of the occupant or home owner. The insurance company is going to pay to replace the drywall and the windows. They are not going to say to the owner, "You're out of luck." What insurance cannot do is replace a child's favorite toy or the family photo album. Especially if you work in poor areas, salvaging these few items may mean saving the only things of any value that family has. We are not going to risk our lives to save a toy, but during the overhaul phase, we have a duty to try to salvage as much of this personal property as is reasonable.

Riding Positions and Tool Assignments

Riding positions and tool assignments are used throughout the US fire service. While many agencies have accepted the idea of preassigning duties, there is still resistance from some corners of the fire service. Deputy Chief John Norman, New York City Fire Department (FDNY, ret.), in his book, *Fire Officer's Handbook of Tactics*, makes the case for the importance of riding positions and tool assignments. The idea of making these assignments ahead of time is to reduce the amount of decision making that has to occur on the fireground, reduce confusion, ensure that critical functions are carried out while reducing duplication of efforts, and improve tactical level coordination.

Each department must develop their own tool assignments based on riding positions and operational priorities. The next discussion about key roles and responsibilities of both engine and truck companies contains examples of critical fireground positions that need to be filled and options for managing these functions with three-, four-, or five-person companies. These samples are provided to inspire discussion and as a reference for building your own engine and truck company SOG. One fireground tool assignment that should not be up for debate is a portable radio. Every member on the fireground must have a portable radio capable of transmitting and receiving on all available fireground frequencies as well the main dispatch frequency. Just because you have the radio does not mean that you need to be talking on it, but it must be present and turned on to the proper frequency so that you can be aware of changing conditions and have the ability to call for help if you get in trouble.

Every member must have a thorough understanding of the basic skills of a firefighter. The fundamental firefighter skills of building construction, fire behavior, SCBA (self-contained breathing apparatus), normal and emergency procedures, fire attack, search, rescue, ventilation, overhaul, and salvage must be mastered. This should be obvious, but there are firefighters out there who are dangerously lacking in these fundamental skills. This has to be fixed. It is incumbent on company officers, training officers, and chiefs to ensure that *all* of our people are capable of performing to the best of their ability on the fireground. This is a dangerous job. If they have not mastered the essential skills, how can we expect our fire service warriors to master the complex, coordinated actions that are required on the dynamic fireground?

Performing the operational priorities that enable us to achieve our strategic objectives can be done in many different ways. How your department goes about accomplishing these functions must be defined by the leadership, based on the particular needs and capabilities of the department. For example, there is little use in discussing who is responsible for tagging the hydrant in a rural area that operates exclusively with tenders. In the next sections, these fireground operational priorities are addressed in terms of engine company and truck company roles and responsibilities.

Engine company roles and responsibilities

The engine company functions must be done first. It may seem obvious, but without the engine company performing its function—getting water on the fire—we cannot stabilize the incident. Initial deployment of engine company personnel should be to implement our operational priority of saving life. This can be accomplished by exposure control to keep a fire from rapidly spreading or by ensuring that the first hand line is advanced to protect an interior exposure. Remember that when we control the ways, we are protecting interior exposures. Essentially, the engine company fulfills its responsibility to save life by accomplishing the operational priority of cover and contain. It should be well understood, but the role of the first line is to confine the fire within the building and to get between the developing fire and any victims who may be in harm's way. This confinement operation will continue while searches are being performed and while a coordinated operation is conducted to vent for fire.

One question that must be asked is, "Should the first engine not stretch a line, and instead begin rescues if there are people obviously in need of help?" Like any situation, your agency must establish its own priorities, but recall the words of Chief Alan Brunacini (ret.): "Extinguishing the fire in most cases solves the majority of the problems." When I was a part-time firefighter with the Darien-Woodridge Fire Protection District, Lieutenant John Tabisz explained it this way:

> If you pull up and there is a woman hanging out the front window, you look up at her and say, "Ma'am, don't worry, the truck is getting a ladder," and you get that line inside the building.

Some people may be resistant to this idea. The point of bypassing one person is to do the greatest amount of good for the greatest number of people. If the engine company abandons the task of covering and containing, who is going to do it? "As goes the first line, so goes the fire" still holds true. If the BTU output of the fire is not controlled, then more people will be threatened. It comes down to making a decision using your best judgment.

Within the strategic priority of saving life, we must be able to supply sufficient water to protect our people. If you are pulling up with a three-person engine company with a 500-gallon water tank, your ability to initiate an aggressive interior attack will be hindered compared with a four-person company with a 1,000-gallon water supply. The responsibility of the second engine company must be to secure a water supply, *if the first engine has not done so already*. Fireground engineers need to be ready, willing, and able to get water for their crew in a timely fashion. How long does it take you to hook up to a hydrant? Does your crew have enough water for you to do that while using up the supply in the tank? The only way to know is to practice.

Once a water supply has been secured, whether through hydrants or a drafting operation, the second due engine must stretch a second line. This line may be used to attack the fire or as a backup line. Remember that NFPA 1710 stipulates that a backup line composed of at least two members be available at structure fires. A backup line should be in place at every fire. Establishing the backup line, however, should not take priority over getting water on the fire, that is, covering and containing, so that saving life can happen in a relatively safe manner. Make sure that the first line has the staffing needed to get a line between the fire and the occupants even if you have to combine a second or third company with the initial engine.

Once the initial deployment has occurred, a water supply has been secured, and primary searches of the fire area have been accomplished, we can move forward into the extinguishment phase. Extinguishing the fire is part of incident stabilization and the most basic responsibility of the engine company. As overhaul and salvage operations are conducted, it is the responsibility of the engine company to ensure that property is conserved and the effects of water damage are minimized.

The motto of the Engine Company Operations class taught by the Illinois Fire Service Institute is "Without us, everything is toast." This is a bit tongue-in-cheek, obviously, but it accurately reflects the importance of the engine company. Although eventually every fire will extinguish itself by running out of fuel, the responsibility of the engine company is to attack the fire in a controlled, aggressive manner that maximizes the effectiveness of operations while minimizing the risk to the firefighters.

Well-planned SOGs for engine company operations help define what we expect the engine company to be able to do and, just as importantly, what they will not do. These guidelines may define the resources available to the engine with respect to hose loads, standard lead outs, and tools, but they should be flexible enough for the company officer to use in the current tactical scenario.

The resources of the engine company inevitably come back to staffing. Having a piece of apparatus that is identified as "Engine 1" is not enough to be an effective engine company. There are certain roles that must be managed on the fireground for the effective deployment of the hoseline to be accomplished. The key functions are the following:

- Officer
- Engineer (driver/operator)
- Nozzle
- Backup
- Control/door

Obviously, we need to have someone to drive the engine and operate the pump (the engineer), an officer to direct the activities of the company, and someone assigned to the nozzle. These three roles should be staffed on every engine company that responds. Staffing an engine with only one or two people creates a serious safety concern and limits the effectiveness of the fireground team. It forces companies to assemble on the fireground to accomplish the simplest tasks and may drastically slow the speed of deployment, allowing the fire to grow unchecked. The roles of backup and control ideally will be staffed with personnel assigned to the engine and responding as a cohesive team. This allows the officer to confirm assignments, reinforce priorities, and brief the whole team about any incident specific details that have been gathered from a preplan or relayed by dispatch. The reality of staffing prevents this from happening for far too many departments. More often than not, the resources to accomplish all five of these functions on the scene are assembled by combining two engine companies, having cross-trained personnel responding with an ambulance meet up with their sister engine company to go to work, or utilizing personnel from responding on-call members who may come directly to the scene. The key is to understand what you can and cannot accomplish with a given number of personnel. The sample riding and tool assignments in figures 4–5, 4–6, and 4–7 show how various functions can be addressed with a three-, four-, or five-person team.

3 PERSON ENGINE COMPANY

		TOOLS	POSITION	DUTY	SINGLE FAMILY	MULTI FAMILY	COMMERCIAL
Fire Attack	**OFFICER**	Radio Hand Light Forcible Exit Tool (Officer Bag) Nothing Showing Irons	Front Door / Main Entrance Interior of Building	Supervise Fire Attack Report Fire Conditions to IC	Supervise Fire Attack Search of Fire Area Coordinate Vent with Truck Company	Supervise Fire Attack Search of Fire Area Coordinate Vent with Truck Company	Supervise Fire Attack Coordinate Vent with Truck Company
	NOZZLE	Radio Hand Light (High Rise Bag) Nothing Showing Can Pole	Same as Officer	Deploy Hose Line Attack Fire	Advance Hose Line Attack Fire	Advance Hose Line Attack Fire	Advance Hose Line Attack Fire
Water Supply	**D/O**	Radio Engine	Pump Panel	Break Hose and Connect Pump Water Supply	Break / Connect Hose to Discharge Supply Interior Line Secure Water Supply	Supply Interior Line / FDC Secure Water Supply	Supply Interior Line Secure Water Supply
Back-Up	**2nd Due Engine**						
Back-Up Line	**3rd Due Engine**						

Fig. 4–5. Three-person engine

4 PERSON ENGINE COMPANY							
Fire Attack	OFFICER	TOOLS	POSITION	DUTY	SINGLE FAMILY	MULTI FAMILY	COMMERCIAL
		Radio Hand Light Forcible Exit Tool (Officer Bag)	Front Door / Main Entrance Interior of Building	Supervise Fire Attack Report Fire Conditions to IC	Supervise Fire Attack Search of Fire Area Coordinate Vent with Truck Company	Supervise Fire Attack Search of Fire Area Coordinate Vent with Truck Company	Supervise Fire Attack Coordinate Vent with Truck Company
	NOZZLE	Radio Hand Light (High Rise Bag) Nothing Showing Can Pole	Same as Officer	Deploy Hose Line Attack Fire	Advance Hose Line Attack Fire	Advance Hose Line Attack Fire	Advance Hose Line Attack Fire
	BACKUP	Radio Irons	Same as Officer	Deploy Hose Line Attack Fire	Advance Hose Line Attack Fire	Advance Hose Line Attack Fire	Advance Hose Line Attack Fire
Water Supply	D/O	Radio Engine	Pump Panel	Break Hose and Connect Pump Water Supply	Break / Connect Hose to Discharge Supply Interior Line Secure Water Supply	Supply Interior Line / FDC Secure Water Supply	Supply Interior Line Secure Water Supply
Back-Up Line	2nd Due Engine						

Fig. 4–6. Four-person engine

OFFENSIVE FIRE ATTACK

5 PERSON ENGINE COMPANY

		TOOLS	POSITION	DUTY	SINGLE FAMILY	MULTI FAMILY	COMMERCIAL
Fire Attack	OFFICER	Radio Hand Light Forcible Exit Tool (Officer Bag)	Front Door / Main Entrance Interior of Building	Supervise Fire Attack Report Fire Conditions to IC	Supervise Fire Attack Search of Fire Area Coordinate Vent with Truck Company	Supervise Fire Attack Search of Fire Area Coordinate Vent with Truck Company	Supervise Fire Attack Coordinate Vent with Truck Company
	NOZZLE	Radio Hand Light (High Rise Bag) Nothing Showing Can Pole	Same as Officer	Deploy Hose Line Attack Fire	Advance Hose Line Attack Fire	Advance Hose Line Attack Fire	Advance Hose Line Attack Fire
	BACKUP	Radio Irons	Same as Officer	Deploy Hose Line Attack Fire	Advance Hose Line Attack Fire	Advance Hose Line Attack Fire	Advance Hose Line Attack Fire
Support	CONTROL	Radio Hydrant Bag	Hydrant Then Join Hose Team	Hydrant Connection Door Control	Advance Hose Line Attack Fire	Advance Hose Line Attack Fire	Advance Hose Line Attack Fire
Water Supply	D/O	Radio Engine	Pump Panel	Break Hose and Connect Pump Water Supply	Break / Connect Hose to Discharge Supply Interior Line Secure Water Supply	Supply Interior Line / FDC Secure Water Supply	Supply Interior Line Secure Water Supply
Back-Up Line	**2nd Due Engine**						

Fig. 4–7. Five-person engine

Truck company roles and responsibilities

The truck company functions are often labeled “support functions” because they support the effort of the engine company to put the fire out. The reality is that the functions of the truck company are essential for a smooth and effective fireground operation. According to our previously stated operational priorities, the first priority of the truck company is to save life. The way the truck company accomplishes this is by performing an aggressive primary search when there is a reasonable likelihood that savable victims are in the building. Saving life, however, is more than just performing searches. It includes establishing an IRIC and performing forcible entry and ventilation.

The role of the first truck company is to initiate operations that support saving life. Operations need to be conducted both inside and outside of the structure to support these functions. According to NFPA 1710, the following assignments must be accomplished for fireground support functions:

- Forced entry/support attack line
- Search
- Ventilate
- Aerial device operation
- IRIC

These fireground functions are typically considered truck company jobs. They can be accomplished by managing the assignments and activities of the truck company. As with the engine company, we can assign riding positions that will define the way the truck can accomplish its tasks.

- Officer
- Driver/operator
- Irons
- Ventilation
- Search

Much like our engine company, the truck company needs a driver/operator (D/O) to get the apparatus there. The D/O by necessity should function as a part of the outside crew, which puts the D/O in a position to use the aerial if needed. In many departments, that function is accomplished with a three-person crew, in which the position of outside vent is assigned to the driver/operator. Then the officer and the irons positions are filled with the other two, and thus form the initial complement of the inside crew. This pair is in a position to force entry for the engine, perform a primary search of the fire area, and ventilate for life. If we are limited to three members, we can allow the outside vent person to begin exterior ventilation operations unaided, because he or she is not entering an IDLH atmosphere (provided our SOGs spell out the allowable actions of the outside vent person).

If we are fortunate enough to have a fourth or fifth member assigned to the truck (or we combine another fireground company with the initial three-member crew), we can then round out the positions of ventilation and search. The vent person is partnered with the outside vent person as part of the outside crew. Their responsibility involves operating initially outside of the structure to vent for life. The fifth member will be assigned to the position of search and join the inside crew.

When we begin deploying truck company personnel around the fire building, we need to deal with areas of concern in a logical order. First, we must ensure that the fire floor is taken into consideration. Obviously, any victim who is on the fire floor is in the most hazardous position. The role of the truck is to search for, remove, and rescue these people, while also providing for the forcible-entry needs of the engine company. Second, the next area that needs to be taken care of is the floor above the fire. Truck company personnel should be dedicated to the fire floor and floor above it in that order, if possible. This can be accomplished by assigning the inside crew to operate initially in the front of the building, where they can provide forcible entry, and then on the fire floor in support of the engine company and in a primary search mode. The outside crew is responsible for the rear of the building, followed by the floor above the fire. In dealing with the floor above, how much the outside crew accomplishes is directly related to the number of members assigned to the truck. If the outside vent person is functioning as a member of a three-person company, that person may only be able to accomplish opening the rear for the engine and throwing a ladder to a second floor as a secondary egress. If, instead, we have a four-person truck, the outside crew can assume more responsibilities for laddering; conducting vent, enter, and search operations; or performing more ventilation. If the fire is on the top floor, the outside crew can perform vertical ventilation if needed.

As a component of the saving life function, the outside crew of the first truck can establish the IRIC while still performing ventilation operations. NFPA 1500, *Standard on Fire Department Occupational Safety and Health Program*, allows for this:[7]

> *8.8.5 In the early stages of an incident, which includes the deployment of a fire department's initial attack assignment, the RIC [rapid intervention crew] shall be in compliance with 8.5.11 and 8.5.12 and be either one of the following:*
>
> *(1) On-scene members designated and dedicated as a RIC*
>
> *(2) On-scene members performing other functions but ready to re-deploy to perform RIC functions*

If we are arrive with limited staffing, this allows us to comply with NFPA 1500 as well as the "two-in, two-out" requirements of the federal respiratory protection standard 29 CFR 1910.134, while still initiating offensive operations. The key is that the outside crew cannot become committed to an operation that they would be unable to abandon if needed to function in a rapid intervention situation.

Consider operations for a minute of the "Acme City Fire Department." Our engines are staffed with three members, and our truck has four. Our initial assignment includes two engines, one truck, and a shift commander. We arrive on scene of a 1½-story ordinary building, 25-feet wide by 60-feet long. On arrival, we observe dark brown smoke exiting under pressure from the rear of the building, and the building appears to be occupied. Our engine arrives first and pulls past the building to leave room for the truck. The truck arrives and takes the front of the building. The second engine backs down to the truck. Can we establish command, stretch an attack line, search, vent, and provide for a backup line and IRIC? Yes. The inside crew from the truck deploys with the first engine into the building. This provides the needed support for the engine, and also allows for search to commence. The outside crew has the responsibility for being the IRIC, but can also perform horizontal ventilation opposite the engine, control utilities, and provide the initial 360° size-up of the rear of the building. They have their tools and are able to adjust to a rapid intervention need, if it is needed right away.

If the fire has advanced beyond the early part of the growth stage, it is critical that the incident commander replace the IRIC with a fully equipped and sufficiently staffed RIT. A rapid intervention team should be not less than four firefighters and may require the assignment of additional personnel based on the building. This enables the outside crew to take care of the critical areas on the floor above the fire. In our example, the outside crew would move to the attic area (which in a one-and-a-half story building is likely to be living space) and conduct a primary search, once another company has been assigned RIT. By keeping the second half of the truck operating outside or on the floor above, the officer has accountability for them, even though the officer does not see them. Effective radio communication and following SOGs ensure that we know where they are.

Once we have accomplished the priority of saving life, the truck company can then move on to venting for fire, overhaul, and salvage. Precontrol overhaul and venting for fire are critical priorities that directly affect the ability to bring the fire under control and complete extinguishment. Realistically, we will need more than a single truck company assigned to the incident scene to accomplish all of the fireground priorities in a timely manner. If we are working with a three-person truck crew, the responsibility for the floor above the fire will fall to the second truck. Options for three-, four-, and five-person truck companies are shown in figures 4–8, 4–9, and 4–10.

Vertical ventilation as a tactic to vent for fire can have a tremendous impact on how well firefighters can maintain their SA and avoid becoming disoriented. Opening the roof provides a tremendous amount of lift that not only allows them to see better (which helps avoid vestibular illusions, as discussed in chapter 2), but also provides clean air for any potential victim still in the building. It also helps us channel the direction of the toxic products of combustion to control the horizontal spread of fire.

OFFENSIVE FIRE ATTACK

3 PERSON TRUCK COMPANY

		TOOLS	POSITION	DUTY	SINGLE FAMILY	MULTI FAMILY	COMMERCIAL
Inside Crew	**OFFICER**	Radio Hand Light Irons Search Rope Thermal Imager (if needed)	Front Door / Main Entrance Interior of Building	Supervise Search and Rescue Locate Fire and Control Vent	Size-Up Locate Fire Victim Search	Size-Up Locate Fire Victim Search on Fire Floor	Size-Up Locate Fire Victim Search in Fire Area
	CAN	Radio Hand Light Pole / Can	Same as Officer	Forcible Entry Vent Search	Forcible Entry Vent Search	Forcible Entry to Fire Area Search Fire Floor	Forcible Entry Search Vent Assist Getting Back Door
Outside Crew	**OVM**	Radio Hand Light Pole Irons Ladder	Slides, Rear and Roof of Building	Forcible Entry Vent, Enter, Search Vent Ladder Utilities	Size-Up Forcible Entry Rear Vent Vent, Enter, Search - Above the Fire Cut Utilities	Rear in Small Multi Family Vent, Enter, Search - Above the Fire Ladder	Rear if Small Building Ladder for Roof Crew
Search Above the Fire	**2nd Due Truck**						
Ventilation	**2nd or 3rd Due Truck**						

Fig. 4–8. Three-person truck

OFFENSIVE FIRE ATTACK

4 PERSON TRUCK COMPANY

		TOOLS	POSITION	DUTY	SINGLE FAMILY	MULTI FAMILY	COMMERCIAL
Inside Crew	**OFFICER**	Radio Hand Light Forcible Exit Tool Search Rope Thermal Imager (if needed)	Front Door / Main Entrance Interior of Building	Supervise Search and Rescue Locate Fire and Control Vent	Size-Up Locate Fire Victim Search	Size-Up Locate Fire Victim Search on Fire Floor	Size-Up Locate Fire Victim Search in Fire Area
	IRONS	Radio Hand Light Irons / Can Rabbit Tool (if multi family)	Same as Officer	Forcible Entry Search Vent	Forcible Entry Search and Remove Victim Vent	Forcible Entry Search Fire Floor	Forcible Entry Search Vent Assist Getting Back Door
Outside Crew	**VENT**	Radio Hand Light Pole / Can Irons Saw (roof) Ladder	Slides, Rear and Roof of Building	Forcible Entry Rear Vent, Enter, Search Vent Ladder Utilities	Work with Driver Vent Vent, Enter, Search-Above the Fire Cut Utilities Roof (if needed)	Rear in Small Multi Family Vent, Enter, Search - Above the Fire Ladder Search Above the Fire	Vent for Entry Assist Laddering (2nd Egress) Roof Vent
	OVM	Radio Hand Light Pole Irons (ladder)	Sides, Rear and Roof of Building	Forcible Entry Rear Vent, Enter, Search Vent Ladder Utilities	Size-Up Rear Forcible Entry Rear Vent Vent, Enter, Search - Above the Fire Cut Utilities Roof (if needed)	Rear in Small Multi Family Vent, Enter, Search - Above the Fire Ladder Search Above the Fire	Vent for Entry Ladder Roof Vent
Ventilation	**2nd Due Truck**						

Fig. 4–9. Four-person truck

OFFENSIVE FIRE ATTACK

5 PERSON TRUCK COMPANY

		TOOLS	POSITION	DUTY	SINGLE FAMILY	MULTI FAMILY	COMMERCIAL
Inside Crew	**OFFICER**	Radio Hand Light Forcible Exit Tool Search Rope Thermal Imager (if needed)	Front Door / Main Entrance Interior of Building	Supervise Search and Rescue Locate Fire and Control Vent	Size-Up Locate Fire Victim Search	Size-Up Locate Fire Victim Search on Fire Floor	Size-Up Locate Fire Victim Search in Fire Area
	IRONS	Radio Hand Light Irons Rabbit Tool (if multi family)	Same as Officer	Forcible Entry Search Vent	Forcible Entry Search and Remove Victim Vent	Forcible Entry to Fire Area Search Fire Floor	Forcible Entry Search Vent Assist Getting Back Door
	CAN	Radio Hand Light Pole 6' Can	Same as Officer	Assist Forcible Entry Use Can Vent Open for Engine	Assist Forcible Entry Use Can Vent Open for Engine	Assist Forcible Entry Use Can Vent Open for Engine	Assist Forcible Entry Use Can Vent Open for Engine
Outside Crew	**VENT**	Radio Hand Light Pole / Can Irons Saw (roof) Ladder	Sides, Rear and Roof of Building	Forcible Entry Vent, Enter, Search Vent Ladder Utilities	Work with Driver Vent Vent, Enter, Search - Above the Fire Cut Utilities Roof (if needed)	Rear in Small Multi Family Vent, Enter, Search - Above the Fire Ladder Search Above the Fire	Vent for Entry Ladder Roof Vent
	OVM	Radio Hand Light Pole Irons (ladder)	Sides, Rear and Roof of Building	Forcible Entry Rear Vent, Enter, Search Vent Ladder Utilities	Size-Up Rear Forcible Entry Rear Vent Vent, Enter, Search - Above the Fire Cut Utilities Roof (if needed)	Rear in Small Multi Family Vent, Enter, Search - Above the Fire Ladder Search Above the Fire	Vent for Entry Ladder Roof Vent

Fig. 4–10. Five-person truck

"But we don't have a truck!"

It is important to remember that the functions of the engine company and the truck company do not depend on the type of apparatus. It doesn't matter if you pull up on a triple-combination pumper, a 100-foot tower ladder, or a 105-foot quint. Breaking down the operational priorities of the fireground using common language and referring to engine companies and truck companies is meant to address two distinct types of fireground functions: suppression and support. The goal is to have a universal language for and understanding of these functions. The operational priorities of size-up, calling for help, saving life, covering and containing, ventilating, extinguishing, overhauling, and salvaging must be accomplished regardless of the type of apparatus you arrive on. Your department may not own an aerial device, but that does not mean that truck work does not need to be done.

Situational Awareness and Disorientation

Establishing strategic objectives, operational priorities, guidelines for engine and truck company operations, and tool assignments formalize the critical knowledge, skills, and abilities that our fire service warriors need to thrive on the fireground. Mastering these skills develops a sense of confidence. When we trust our knowledge, skills, and abilities, we are able to process more information, because we are not wasting time thinking about the basics of our job. Our goal is to devote the maximum amount of RAM (random access memory, or how much, and how fast, a computer can "think") to maintaining our individual and team SA.

The fireground is a dynamic environment that is filled with threats to the firefighter. These threats exist in a 360° bubble, left and right, in front of and behind, and above and below the firefighter (fig. 4–11). To safely operate in this kind of environment, we must develop the skill to maintain SA. The US Coast Guard says that "situational awareness is the ability to identify, process, and comprehend the critical elements of information about what is happening to the team with regards to the mission."[8] In other words, if you have SA, you constantly know what is happening around you and where you are in relation to threats.

Situational awareness is a concept that is taught in many warrior circles, and it has particular applicability to fighter pilots. Fighter pilots operate in an environment where they must maintain 100% awareness of where they are in relation to friendly and hostile aircraft and predict how an engagement will unfold. If they lose SA, they run the risk of a midair collision, crashing, being shot down, or shooting down a friendly aircraft. None of these circumstances would be acceptable, so pilots train constantly to maintain their SA. They do this in simulators, low-risk virtual reality games, and in actual flight operations.

Fig. 4–11. Where are you, the fire, and the other crews inside the bubble?

For firefighters, the need to maintain SA should be obvious. Like fighter pilots, we operate in an environment where threats can come from any direction. We must know where we are within the "battle space," the fire building. We must know where we are in relation to the seat of the fire. We must know where the location of the other members of our crew and the larger fire-suppression team. A loss of SA means that a firefighter no longer knows where the "bubble" is. There is a breakdown of the ability to monitor where the firefighter and the crew are in relation to the fire or a safe egress. The firefighter can no longer accurately interpret the effectiveness of his or her actions, nor the effectiveness of the suppression and rescue efforts as a whole. A loss of SA can lead directly to disorientation. Disorientation far too often leads to a firefighter line of duty death (LODD).

Situational awareness is a cognitive skill; it can be taught. Depending on your fire service experience, you may already be using an effective means of teaching SA. The wildland firefighting community is very effective at developing the skills needed to properly maintain SA. The structural firefighting community teaches new recruits skills that help in developing and maintaining SA, but not always with the deeper understanding of the cognitive process. We can begin the process of developing SA in the classroom by examining the elements that lead to maintaining or losing "the bubble." Through classroom foundations, we can develop an understanding of how our brains collect and analyze data. The concepts presented in the classroom must be practiced in drills if they are to be used effectively on the fireground. Even though maintaining SA is essentially a cognitive ability, it must be practiced and performed while being physically engaged in firefighting. It is like understanding the math behind friction loss calculations but being overwhelmed by the amount of activity on the first structure fire you pump. You can have all the knowledge in the world, but if you cannot use it effectively, it is wasted. Being trained in SA may be the difference between living and dying for some of our firefighters.

The elements of situational awareness

To effectively train our personnel in SA, we have to start with laying out the elements that go into developing and maintaining SA on the fireground. To have SA, we must be able to perceive a threat, comprehend the threat, and predict what effect that threat may have on us. These elements—perceive, comprehend, and predict (or project)—form the cornerstone of maintaining complete SA on the fireground. We need to remember that SA is a complex thought process, and as such, we need to break it down into manageable components when teaching it as a new skill.

Perceive what is happening! Perception is the first step in the cycle of maintaining SA. If I am unable to perceive the conditions around me, I am already at a disadvantage. A lack of perception is just another way to describe tunnel vision. In 14 years of attending fire service schools and teaching firefighters, I have heard the statement "don't get tunnel vision" more times than I can count. The way I define tunnel vision is that it is a cognitive focus on one particular aspect of a fireground operation. That singular focus causes you to lose your perception of everything else that is happening around you. A lack of perception can start with the initial dispatch, with your arrival on scene, or in the middle of an operation, because you have encountered a situation that begins to shift your heart rate from the yellow zone into the upper regions of the red or lower level gray zones (as discussed in chapter 2). Remember that the physiological effect of heart rate being elevated because of anxiety has a direct effect on the ability to process cognitive information.

Using techniques like the four-count combat breathing exercise to regain control of heart rate is critical to maintaining the cognitive ability to perceive threats. Fighting the sympathetic nervous system (SNS) responses of anxiety becomes easier with training and experience. Teaching new firefighters, who ideally aspire to be fire service warriors, to control the SNS reaction will lay the foundation for their ability to maintain SA.

Comprehend what the signs mean! You can perceive a threat all you want, but if you cannot comprehend that it is a threat, you cannot do anything with the perception. Let's take pending flashover conditions as an example. We understand that flashover is a violent event that is a regular occurrence at interior structural fires. There are signs that we can use as being indicative that flashover is likely: a great volume of turbulent smoke exiting a room (or the structure) is a sign that the heat inside is beginning to reach the point where flashover is near; rollover and flame-over of the unburned smoke are also indicators that a flashover event is imminent. Do our firefighters understand this? Can they comprehend these warning signs when they see them? If they see a significant volume of dense, turbulent smoke pouring from the doorway of a two-story frame house, can they articulate those facts, or will their thought process be, "that house is on fire"? One of the challenges that we all face is developing experience because of a lack of structural fire responses and limited training time in burn buildings. As a whole, the fire service is called on to deal with so many other tasks—EMS, hazmat, technical rescue, and fire prevention—that we are limited in our time and ability to develop our combat senses. While all the aspects of our profession are important, and need to be practiced, we need to ensure that the high-risk/low-frequency skills of firefighting are practiced more frequently in a burning structure.

Predict what will happen next! Taking your comprehension of the perceived threats and predicting what the potential effects will be is the final element in having SA. You have to be able to perceive the smoke conditions, comprehend whether they are indicators of impending flashover, and then predict what will happen if you crawl headfirst into that doorway without first taking some kind of action to mitigate the conditions. So you pull up in front of our two-story frame with dense, turbulent smoke exiting the structure and say to your partner, "Hey, that looks like it's getting ready to flash. Let's hit it from the door way for a minute until they pop the windows and we get some lift." You have the SA that if you just crawl right into this threat environment, you are going to get burned, and that you need to change the environment to make it relatively safe.

Relative safety

Everything we do on the fireground, or at any incident scene, is about maintaining *relative safety*. We have to accept the fact that crawling into a burning structure to extinguish a fire, searching for victims, going onto a roof to ventilate, or doing any of the other suppression or support tasks we perform is essentially unsafe. Far too often we downplay these risks; we treat what we are doing as normal. This is somewhat understandable; it requires a strong set of virtues and values to acknowledge that we are risking our lives doing something worthwhile. Firefighting is not a safe job. Our objective must be to maintain relative safety by making decisions that will allow us to accomplish our objectives without needlessly placing ourselves or our people into an untenable threat environment. Taking up our impending flashover example again, whether you are the nozzle operator, the company officer, or the incident commander, you need to perceive, comprehend, and predict the effects of just having that initial attack line advance into the building. That SA will allow you to choose a course of action that will help maintain the "relative safety" of the folks operating on the fireground. If your SOGs indicate that an offensive interior attack is called for, you must be agile enough in your thinking to realize that some task must be accomplished first, to allow your objective to be met. You must change the environment so that it is tenable.

Disorientation

The flip side of the coin of SA is disorientation. I think that SA is essentially a binary state. You are either situationally aware or you are disoriented to some degree. We have to assume that we will be somewhat disoriented at every structural fire we go to. We do not have perfect knowledge. We do not pull up with the thermal imaging satellite view of the scene and a blueprint. We can only perceive those conditions that we actually see or hear communicated. If I arrive on scene of a reported fire to see a one-story building with a fence on the Division B and D sides extending to the horizon, I will assume I have a one-story building. If that building was built on a hill and is five stories in the rear, I will have a lack of perfect situational awareness. Communicating conditions and using good size-up skills helps us maintain SA. So we must do everything in our power to limit the disorientation and strive for that perfect SA.

Disorientation is the root cause of firefighter fatalities identified by the National Institute of Occupational Safety and Health (NIOSH) as caused by being lost, and it is likely a contributing factor in deaths caused by being caught or trapped. It is incumbent on us as fire service warriors to understand the contributing factors to disorientation so that we can mitigate them. In chapter 2 we discussed the effect of anxiety reactions on increased heart rates and the impact those elevated heart rates have on cognitive function. When we become anxious and our fight-or-flight response kicks in, our cognitive ability diminishes. It is worth stressing again that SA is a cognitive skill, requiring us to perceive, comprehend, and predict.

While there is no definitive reporting on the role anxiety reactions play in firefighter LODDs, we can examine published reports of LODDs and extrapolate how SNS reactions may play a part in causing the disorientation that has led to fatalities. One such report is NIOSH Firefighter Fatality Report F2008–34.[9] On October 29, 2008, 24-year-old volunteer firefighter Adam Cody Renfroe[10] became lost while operating inside a residential structure fire and was subsequently caught in a flashover. The cause of death was reported as smoke inhalation and burns,[11] but we must consider that disorientation was the root cause. If FF Renfroe had not become disoriented, he would not have become lost, and he might not have been caught by the subsequent flashover. In examining any LODD, the last thing I want to do is to blame the victim. Quite the opposite: the goal is to increase safety for all firefighters, and it is much harder to ignore improvable actions that are identified when we attach the name and face of a fallen brother or sister to it. It is important that we look at the actions that were taken in these fires and try to understand what cognitive processes led to the decisions that were made. We do not want the lessons learned to be lost or avoided. By learning from the deaths of a brother or sister fire service warrior, we are honoring them. With that said, let's look at the events that led to Adam Cody Renfroe's untimely death.

Firefighter Renfroe had two years of experience with the Crossville, Alabama, Fire Department at the time of the incident. He had completed department training on essential firefighter skills, but he had not been through Alabama's Volunteer Firefighter Certification Course. He was among the first three firefighters to arrive on the scene of the fire—the senior member of the two firefighters who stretched the initial attack line.

I can place myself in FF Renfroe's shoes. I have been a 24-year-old paid-on-call firefighter. He entered the structure to do what he believed was his job, to put out the fire. He entered alone because he felt a sense of *duty*, a duty to act. His heart rate was already pounding from the adrenaline rush. This likely caused cognitive impairments because of the impact of his SNS. We have all had this experience: we are either excited or terrified by what we are faced with. When he crawled in through the carport door to begin his fire attack, he found himself in an incredibly difficult set of circumstances. The initial reports transcribed in the NIOSH report say that there was thick black smoke coming from the roof. The initial attack line was stretched, and "the victim and FF2, on air, walked into the structure through the carport door. They were approximately two feet inside the structure and were met by thick, rolling black smoke, but no fire. Quickly, they exited through the carport door taking cross-lay #1 with them."[12]

Firefighter Renfroe then sent his partner, a member with six months' experience, back to get a flashlight. When the second firefighter returned, FF Renfroe was no longer waiting by the carport door; he had reentered the structure. NIOSH investigators stated that "FF2, still on air, entered back into the house through the carport door but could not see his hands or feet just inside the door."[13] At that time, FF2 exited the building, unable to locate FF Renfroe.

Thus, this young man, with minimal training but a huge desire to do his duty, had entered an environment that rapidly sent his heart rate skyrocketing, likely into the red or gray zones. He exited with his partner, but then reentered alone. Why? We can never be certain. We can postulate that when the two entered the structure the first time, FF Renfroe's SNS response was engaged and heart rate elevated in response to the perceived threat (the fireground conditions). We have already seen that disorientation is a factor in firefighters becoming lost. It can occur when the heart rate, as a result of anxiety, approaches 175 beats per minute, cognitive processing deteriorates, tunnel vision begins to occur, and there is often a perceived slowing of time. Why did FF Renfroe reenter the structure by himself? There is no way to be certain, but it's likely that his SNS response caused the perception that his partner was gone for an extended period of time and that the fire was getting beyond the point where it could be controlled. His SNS was screaming to *fight*, because his personal condition and self-assessment dictated putting the fire out. Unfortunately, these conditions did not provide him with the knowledge, skills, or experience to fully comprehend and predict the possible outcomes of entering the structure. We must examine LODDs like those of Adam Cody Renfroe if we are to fully understand the importance of SA and the critical role that disorientation plays in firefighter fatalities.

Training situational awareness

The ability to maintain SA depends on our training, our judgment, and our personal condition. These factors must come together every time we are going to perform a high-risk evolution: structural firefighting, wildland firefighting, collapse or high-angle rescue, or any of the wide arrays of emergencies we are called on to mitigate. A lack of competency, or even a temporary lack of focus, can lead to a chain of events that may be catastrophic or even fatal.

Judgment is defined as "the process of forming an opinion or evaluation by discerning and comparing."[14] It is the ability to choose the best available option to respond to a given set of circumstances. Obviously, there is no one right answer when it comes to making decisions on the fireground, and there is no one right way to fight a fire. There are decisions, including the effects of a nondecision, that we might consider "bad decisions," because they can lead to fireground injuries or fatalities. Developing a sound basis for making judgments or tactical decisions on the fireground is a direct result of training and experience. Given the national trend toward a dwindling number of structural fire responses, we must give our fire service warriors the ability to develop experience through realistic, live-fire training.

Personal condition is the combination of training, experience, and our mind-set about the virtues and values a fire service warrior should have. Those who ascribe to the ideals of the fire service warrior embrace the Boy Scout Motto, "Be prepared." We begin instilling that idea of being ready into recruits on day one of the academy. Recruits are taught that they must have their equipment ready for duty and are shown how their personal turnout gear is to be placed on the rig. We teach the idea of readiness when we work on developing SCBA donning skills, ensuring that the recruits place their SCBA into the ready position every time it is doffed. It is incumbent on all fire service warriors to place themselves in the ready position each and every day.

There are countless trivial, mundane, and downright serious matters that we humans have on our minds 24 hours a day, seven days a week. You may be worried about your mother's or father's failing health, how the kids are doing in school, or the possibility of being laid off. All of us are bound to bring those concerns into the firehouse. Minimizing the impact of distractions is important if we are to concentrate 100% on the task at hand when we are fighting fires, caring for victims, or even cleaning the firehouse. If you are distracted when you are performing a high-risk evolution, there is an increased risk that you or another member of the team will be injured or killed. Distractions take away from your ability to maintain SA, and a loss of SA will lead to accidents and mistakes.

Fire service warriors set out every day to be prepared for whatever will come their way. It may be a structure fire, an EMS call, hazmat training, a fire prevention lecture at the grade school, or cleaning the small tools on the engine. For career firefighters, it is easier to be mentally and physically prepared for duty because they know when they are going into work; driving to the firehouse for a shift change is a concrete time where they can put their game face on. On-call firefighters must be able to set aside the thoughts and activities they are engaged in when the pager goes off and train themselves to "flip the switch" and suddenly be in the ready position.

The *personal condition* is a combination of being mentally and physically prepared to perform the job at hand. If you are distracted by situations and circumstances, you are placing yourself, and your brothers or sisters, in danger. If you are not physically fit enough to maintain the metabolic output required to perform any job on the fireground, you are placing yourself, and your brothers or sisters, in danger. A deficiency in either state of readiness could result in a fireground injury or LODD.

Training lies at the core of everything we do in the fire service. No one is born instinctively knowing fire behavior, building construction, or critical thinking. We must provide our apprentice and experienced fire service warriors with the basic and advanced training they need to flourish. Each one of us has seen the results of a poorly trained firefighter, known as a "20-year mistake." In my experience, training comes in three modes: formal, company, and individual. Formal training includes the classes that lead to certifications and often relate back to standards developed by the NFPA, the Occupational Safety and Health Administration (OSHA), or our state fire marshal's offices. Company training is the day-to-day instruction and preparation that company officers lead to make sure their personnel are prepared. Individual training is study, research, or experience that we develop on our own.

Training our firefighters to maintain SA needs to occur across all three modes of training. We must begin with recruit firefighters—our aspiring fire service warriors—and train them in fire behavior and building construction, tactics and procedures for fire attack and suppression, ventilation, search, and the related fireground support functions. Once this foundation is laid, then we must teach our apprentices to put all of these individual concepts together and think critically about their interdependency.

Effectively training our firefighters to maintain SA requires that we engage in realistic scenario-based training. We must push them to confront experiences that are difficult and that scare them, so that they can develop the ability to manage not only critical fireground tasks, but also the inevitable anxiety reactions that occur. If you cannot keep yourself calm and focused, anxiety will lead to a loss of SA. A loss of SA may lead directly to disorientation, which all too often leads directly to a firefighter fatality.

It's a Team Sport

Firefighting is a team sport. We are not operating as individuals, and as such, the actions of the team are vital in our ability to maintain SA. We accomplish this through the use of SOGs and knowing what our teammates are doing based on the situation. Think about a successful NFL football team. If the offense has any hope of moving downfield and scoring a touchdown, the person calling the plays—be it the head coach (who would be the incident commander in the firehouse), the offensive coordinator (the ops section chief), or the quarterback (the group supervisor)—has to rely on each member of the team to perform the assigned mission without needing to be micromanaged. What happens when someone misunderstands the play that has been called? The quarterback gets sacked, the pass gets intercepted, or the running back does not have a hole to run through. That well-conceived plan is only as good as how the individual team members execute their parts.

NFL teams play a guaranteed 16 games a year, but they practice from the end of July until the beginning of September to make sure everyone knows the playbook. Let's use the Baltimore Ravens 2009 training camp schedule as an example (they are the first team listed on the NFL website). They began practice for the 2009 season on July 28, 2009, with practices twice a day. The first full day that the players were off was August 14. During this time, the team practiced 26 times, had team meetings, and played a preseason game.[15] These team members worked hard to make sure they would be prepared physically before the season started and then developed their ability to play as a team through difficult, realistic practices. Even the rookies coming into the 2009 season probably had at least a decade of football experience before they showed up for their first NFL training camp. The veteran player is bringing an even deeper understanding and wealth of experience to the team. Is your fire department training that hard? Do your companies know what everyone else on the fireground is doing based on well-developed SOGs and realistic scenario training? Even with all this preparation, mistakes are made, but we can minimize them by preparing and training. In sports, the objective of the practice is to get ready for the season. The practices do not stop once the season begins though. Throughout the week, players are studying plays, watching videos, and working out. Football players do all this preparation, and they have a job that is not likely to get them killed. We must approach our profession with the same, if not greater, focus.

Whether we are talking about a pro football game or a fireground operation, the overriding concept is *implicit coordination*, the noncommunicated coordination of action. One study, *Implicit Coordination in Firefighting Practice: Design Implications for Teaching Fire Emergency Responders*, by Zachary O. Toups and Andruid Kerne of Texas A&M, examines this in some detail.[16] The authors examine how firefighters use "complementary communication modalities, well-defined roles, and shared experience histories to implicitly coordinate their actions" to maintain a collective SA. They refer to this collective SA as "team cognition." Team cognition is an example of distributed cognition, "a theoretical framework for investigating how information is coordinated within systems of people, artifacts, and environments"[17] that applies to small group actions of, for example, a fire company or a football team. In team cognition, or team SA, as I call it, we are aware of the actions of the rest of the team based on the audible and environmental cues we are receiving and a well-defined set of SOGs. We will not have perfect knowledge on the fireground, so we will "fill in the blanks" by using the cues we observe and by anticipating the actions of the other members of the team.

As an example, Tom and Bill are assigned to the engine; Tom has the nozzle, Bill is the backup. They arrive on scene of a reported structure fire to find a working fire in what appears to be the kitchen of a one-story ordinary house. They advance a cross-lay into the building based on their SOGs. As they make entry, visibility is limited to about 2 or 3 inches above the floor. Tom moves forward into the structure, and Bill remains just inside the front door feeding hose in. Tom and Bill work together every third shift, they train together, and they have been to dozens of fires together; they know the actions the other will take. As Tom is advancing the line, Bill is listening to the staccato sound of the nozzle opening and closing as Tom ensures the ceiling is not too hot and as he sweeps the floor to ensure that it is intact and cool enough to crawl on. Tom's progress is not slowed because Bill knows that Tom moves in increments of 4 to 5 feet at a time, so he feeds 10 feet of hose into the house each time he feels Tom advance. This is all accomplished without a lot of talking back and forth, no screaming "Give me more line" or anything else. They are practicing team SA. They have a shared experience history that allows them to function smoothly without explicitly communicating.

You can develop this ability in your fire company through regular drills and training. Is it easier for a career department where the same crew works together every third day? Yes it is. It is still an attainable skill set for a volunteer, paid-on-call, part-time, or combination department; it just requires a diligent focus on training.

While it is a critical skill that our company maintain SA on the fireground, team SA must extend beyond the company level to the whole of the fireground team. We need to see the big picture through the inputs we are receiving from the entire operation. As the nozzle operator of the attack line, I am using the senses I have at my disposal to maintain my SA, but I am also relying on cues from the other firefighters operating on scene. I am listening for the sounds of windows breaking; a saw on the roof; and radio communication about what is happening in front, behind, above, below, and to either side of me. These cues are being monitored by me and my company as we advance on the seat of the fire to ensure that the environment will remain tenable for us. At the same time, other companies are taking their cues from us. The truck searching the floor above the fire is listening for the sound of victims and also for the sound of water hitting the ceiling level below them; these are cues that help them to maintain the same team SA that I have: we are getting water on the fire and the ceiling is not so hot that everything is turning to steam. They know that it is okay to continue with their assignment without having to listen to a radio message from the engine officer or a direction from the operations chief to go ahead. We are using team SA to help observe what else is occurring within the structure and continue to make critical decisions.

There are causes of fireground fatalities that we may be unable to prevent. Sometimes, despite our best intentions and efforts, situations will occur that we were unable to perceive. Smoke explosion from an interior void space may be one of those conditions. We can use effective ventilation techniques to try and minimize the risk, but if we are contending with a 5,000-square-foot, “McMansion” with open planning, heavy insulation, and numerous void spaces, we may not be able to completely eliminate risk. We also have to recognize that, as long as we are entering a building that is on fire, we are going to suffer fireground injuries and fatalities. Only by mastering skills and abilities and striving to be in the ready position can we reduce these risks.

Developing the skills of our personnel to maintain SA will give them a better chance of avoiding one risk factor that will more often than not lead to a fatality: disorientation. Realistic and challenging scenario-based training performed in single company or battalion, as well as mutual aid exercises, allow firefighters to develop the cognitive skills to maintain SA. While there are factors that we cannot control, like the interior features of the building, we can reduce the risk of fireground operations. One factor that we can directly control is how clear the directions our people receive are regarding their assignments and responsibilities at the fire scene. This direction can come in any number of ways, but it amounts to the same thing: an IAP.

Standard Operating Guidelines as Incident Action Plans

An IAP is not a four-letter word—it's a three-letter acronym—but there are folks in the fire service who treat it as downright obscene. We have heard the term thrown around in classes, articles, and the voluminous National Incident Management System (NIMS) documents.[18] The NIMS core document states that "an Incident Action Plan (IAP) provides a concise, coherent means of capturing and communicating the overall incident priorities, objectives, strategies, and tactics in the context of both operational and support activities."[19] It goes on to direct that "every incident must have an action plan." This topic is covered extensively in the NIMS literature and in the incident command classes, such as the ICS-300 and 400 programs, and the National Fire Academy Command and General Staff Course. These classes are designed to train firefighters and officers to develop IAPs. I have heard experienced officers stand up in classes and indigently say, "I'm not going to sit down and write out some pile of paperwork every time we have a fire! I've got work to do." This declaration inevitably comes after an instructor explains how to prepare the standard Incident Command System (ICS) forms that make up the document that is labeled an *Incident Action Plan*. My response is always the same, "You're right."

There is still a misconception among some that an IAP is a collection of forms. While an ICS202, *Incident Objectives*, and ICS204, *Assignment List*, along with a 205, 206, and a traffic plan (at a minimum), provide important details that can help guide the strategy and tactics at an incident, they do not define specific tasks. The IAP is an articulation of objectives and a means of accomplishing them. The deployment of a first-alarm assignment can and should be established in SOGs in the form of policies on engine company and truck company operations, and guidelines directing essential fireground functions relevant to safety, communications, and rapid intervention. A well-developed set of SOGs that govern the actions of your first-alarm assignment can serve as your IAP.

There is an old maxim in the fire service, "The first 5 minutes sets the stage for the next 5 hours." I do not know who said it first, but there is a truth to this statement that is easy to see. If the first 5 minutes of an operation are efficient and effective, then the remainder of the operation is more likely to continue along smoothly. Conversely, if the deployment of the initial first-alarm companies is haphazard, then the job becomes a knot of problems. The goal of both an IAP and a first-alarm SOG are the same: to coordinate the initial deployment and operations of fireground units.

Operating modes

When we look at developing an IAP, the first step in planning for the operational period is to determine the strategic objectives.[20] The three key strategic objectives that the fire service uses to guide our priorities, as discussed earlier, are the following: save life, stabilize the incident, and conserve property.

The level of risk that we are willing to assume as a group to accomplish these objectives must be addressed in our planning and codified in our SOGs.

To develop sound SOGs that can function as IAPs, we must address the operational modes in which our personnel function. Hazardous materials incidents have been operated under the concept of offensive, defensive and nonintervention options for many years. Using these operational modes as a basis and evaluating the general flow of fireground operations, we can plan for four operational modes.

- Offensive: companies are inside the structure.
- Defensive to offensive: an initial defensive attack (blitz attack) is made while companies prepare to enter the structure.
- Defensive: companies will not be committed inside the structure.
- No attack: we will make no attack on the fire.

Each operational mode needs to have specific, easily identified guidelines to aid the incident commander in tailoring the SOG into an incident-specific IAP.

Offensive

Offensive operations should be used in these conditions:

1. The fire is in the early growth phase.
2. The fire is fully developed; the building is occupied; and conditions are such that victims are savable, the building can be made tenable for firefighters, and property can be saved.

If the fire is still limited to a room and contents, we should be aggressive in entering the structure and extinguishing the fire. If the fire has spread to some structural components of the building, and the building is occupied, we must enter the building to save life, stabilize the incident, and conserve property, provided that conditions are still tenable for a victim to be alive inside. If the fire has progressed to the point where a significant percentage of the structure is involved, we must weigh the benefit to be gained in attempting to save property (fig. 4–12).

Defensive to offensive

The defensive-to-offensive strategy is used in the following conditions:

1. The BTU output of the fire will not be quickly controlled by a single hand line.
2. The time it will take to reach the seat of the fire will allow significant fire growth.

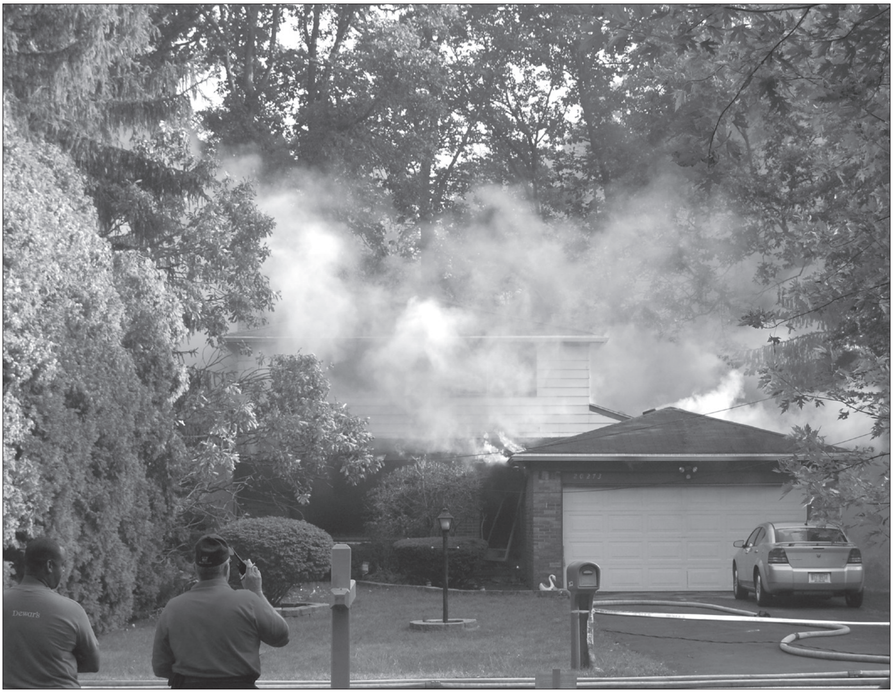

Fig. 4–12. Conditions like these indicate that offensive actions are warranted.

There are times were a fire will have developed beyond the rapid knockdown of the initial engine company. Moreover, when we are dealing with complex buildings, the possibility exists for significant fire growth during the time it takes to lead-out to the seat of the fire. In these situations, the defensive-to-offensive or blitz attack strategy may be effective. Our goal in these marginal situations is to achieve a rapid knockdown to slow the growth of the fire, reduce the BTU output, and buy time for hand lines to be stretched into the fire area (fig. 4–13).

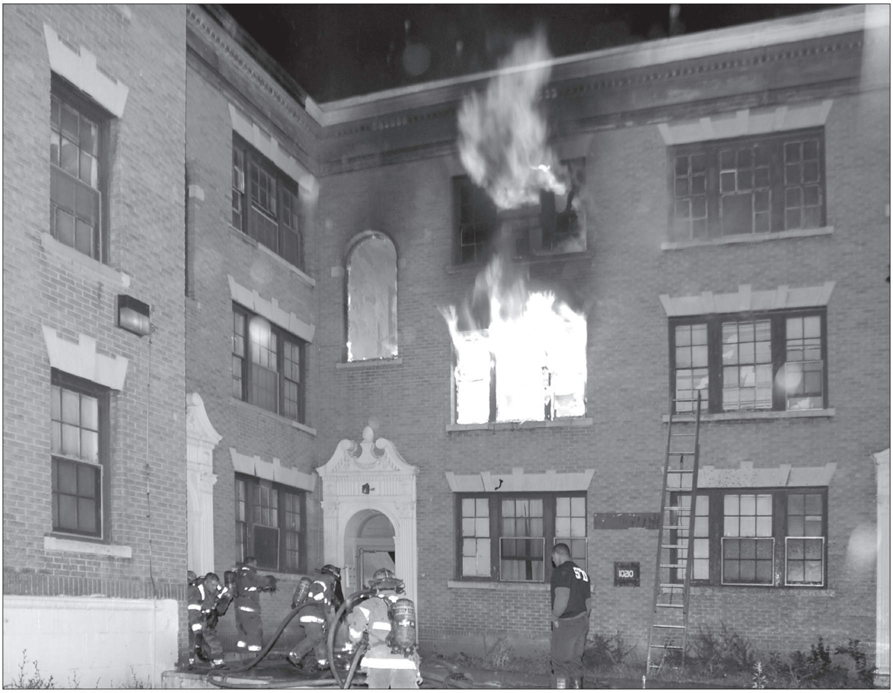

Fig. 4–13. This may be the time to consider a defensive-to-offensive strategy. There is no savable life in the second-floor unit, but controlling the BTU development with a quick blast from a 2½-inch line or deck gun might slow growth and allow for an offensive attack. We may still have savable life in the building, but won't for long.

Defensive

The defensive mode of operations is used in the following conditions:

1. The building is involved to the point where little property conservation is possible.
2. Collapse is likely.
3. The resources are not available to make a relatively safe offensive or defensive-to-offensive attack.

In defensive operations, there is little chance of saving anything of value in the initial property, and, instead, the goal is to confine the fire to a geographic area. Master streams and large-diameter hose are generally deployed to bring enough water to confine the BTU output to the initial building and keep it from spreading (fig. 4–14).

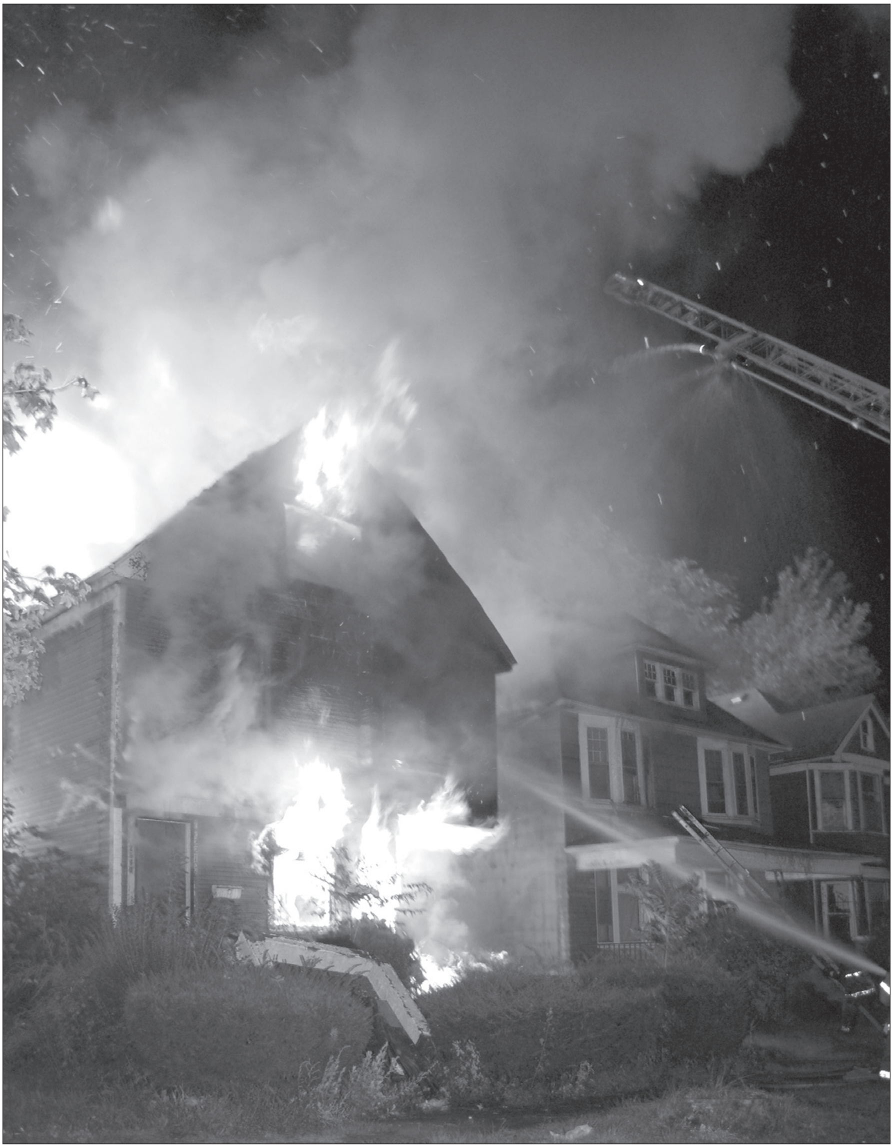

Fig. 4–14. This building is a loss. There is no savable life or property inside. The objective is to keep it from spreading.

No-attack

The no-attack mode is used in the following conditions:

1. You do not have the resources to safely begin defensive operations.
2. There is less risk in letting the fire burn than in attempting to extinguish it.

The no-attack mode can be thought of as a nonintervention strategy. An example is a bulk storage tank of a liquefied compressed gas (like propane) exposed to a significant fire load where BLEVE (boiling liquid expanding vapor explosion) is likely, and the tank is remote from any population center. Another example might be a warming barrel in the fenced in yard of a building under construction with a large dog in the yard. Sure, open burning is probably illegal in your jurisdiction, but you really have a police matter in this case. If the only harm that can occur by such a fire is to the responders, then we should let it burn.

The first 15 minutes

The adage "as goes the first line, so goes the fire" is fairly universally accurate. If we do not efficiently and effectively deploy resources quickly to save lives and extinguish the fire, there is a greater likelihood of someone being injured or killed or of losing the building all together. What this really means is that the first 15 minutes of operations will make or break our operational effectiveness. In the first 15 minutes, we have to accomplish a significant amount of physical and intellectual work with limited resources. This can be an overwhelming scenario for our fireground leaders. The reality of the 21st century is that we are responding to fewer structure fires than ever before. As a result, our leaders are not developing as much experience on the fireground. They have to develop the judgment and capacity to manage the fireground operation through drill and study. Improving the ability of our fire service warriors to manage the volume of data and make decisions will improve fireground efficiency and ideally reduce fireground injuries and fatalities.

Our first step in developing SOGs is to establish the strategic priorities of our agency. They will likely be the same three priorities we have already discussed, but there is always room for local variation. It is worth remembering that strategic objectives are meant to be broad and general enough to allow for flexibility. After we know our objectives, we need to focus on our four operational modes and determine how we will accomplish the operational priorities of SCSC-VEOS specifically for each operating mode. Once we identify the operating mode that will be used, our first-alarm IAP should be governed by the SOG we have in place for engine and truck operations, safety, rapid intervention, IRIC assignment, and incident command (IC). These documents should be where the general guidance of how to accomplish the operational priorities is found. At a *minimum*, these guidelines should explain what is expected of the first due engine, the second due engine, the first due truck, the second due truck, and the IC. This will provide the fundamental understanding of how we will go about accomplishing our mission in the first 15 minutes.

The objective of sound SOGs is to limit the number of decisions that have to be made and develop reasonable and learnable criteria for making critical fireground decisions. If we focus our efforts on developing, practicing, implementing, and reviewing the SOGs that drive the initial attack, we give our people a process to use. That process should exist to support our mission of saving lives and property and help us to perform our duty. We are able to reduce the confusion that is inherent on the fireground by spelling out roles and assignments. The purpose of these guidelines is to improve the implicit coordination of fire companies and empower task and tactical level leaders to make decisions, while operating within a framework of expected actions. We do not want to create a boilerplate set of procedures that govern how each unique fireground situation will be handled, but we can improve team SA by having everyone operating off of the same page in the playbook. Most important, we can reduce the decision-making demands during the initial critical deployment by establishing key functions and providing a basis for accomplishing the tasks that are required to complete those functions. We must eliminate decisions like “what tool should I bring?” and “what should I do when I get there?” to allow our fire service warriors to focus on assessing the dynamic environment of the fireground. At the same time, we will not have an efficient fireground operation if all decisions must come from the top down in the form of explicit control by the IC. While it is critical that decision-making authority be pushed down to the lowest levels, we have to accept that not everyone is a natural decision maker. The fireground is a place where complete information is often lacking. When confronted with uncertainty, and with little time for analysis, some people find making critical, timely, decisions on the fireground very challenging.

In addition to establishing guidelines to reduce the fog of war, we must train our people to use a systematic decision-making tool. Chapter 5 will focus on using a mental model, the Boyd loop, to make critical fireground decisions.

Notes

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5

Fireground Tactical Decision Making

In any moment of decision, the best thing you can do is the right thing, the next best thing is the wrong thing, and the worst thing you can do is nothing.

—Theodore Roosevelt

A structure fire is a dynamic microcosm, a world in and of itself where the properties of chemistry and physics play out by consuming the structure. As fire service warriors, it is our duty to quench this unrestrained chemical chain reaction. The fireground is a chaotic environment, and we must make critical tactical decisions to bring it under control. If we are going to be effective in suppressing fires in a manner that saves lives and protects property, we need to understand on an intuitive level exactly what is occurring in the building. On the fireground there is little time for thoughtful analysis of the situation. Consider fire development for a moment.

In Keokuk, Iowa, on December 22, 1999, three of our brothers lost their lives attempting to rescue a trapped child. It was approximately 7 minutes from the time firefighters entered the building until flashover of the entire building's interior.[1] From the time we arrive on scene, we must intuitively understand the battleground (the building construction) and the enemy (fire behavior) without hesitation. We need to look at the fireground as a system. A system is defined as "an assemblage or combination of things or parts forming a complex or unitary whole."[2] A structure fire is a system in which the combination of the chemistry of fire behavior, the physics of heat transfer and the movement of gases in a container, gravity, and the type and quality of the construction of the building all play a factor in how a fire will develop. While fighting a fire, we are attempting to disrupt the natural chemical chain reaction that allows the development of fire, but in doing this, we must consider the effects the other components of the system have on our ability to fight the fire and the effect we have on each component of the system individually and as a whole. If we do not respect all of these components and understand the interconnected nature of them, then our successes are nothing more than "catching lightning in a bottle."

This idea is nothing new. Fire departments have recognized for many years how interdependent all of these factors are. We teach our apprentice warriors the importance of coordinated fireground operations and the negative impact we can have on the whole operation if we do something at the wrong time. A mistimed horizontal ventilation opening in a building that is superheated but oxygen deficient can lead to a backdraft; flowing water onto the seat of a well-developed fire before opening the building up can force steam down on the firefighters and any victims that may be inside; in a basement fire in a building with a large open cockloft, it is critical to make sure that the fire is not running overhead unnoticed.

The Apprentice Fire Service Warrior

The difficulty we face in this day and age is that developing a deep understanding of all of these interrelated factors takes experience, and experience takes time to develop. Statistics show us that we are seeing fewer structure fires. While this is a *wonderful* thing for the communities we serve, it is harder for our fire service warriors to gain the experience they need to synthesize all of this information into a usable whole. Firefighters engage in a trade in the same way electricians, carpenters, and plumbers do. We perform physical tasks to complete a job. This is blue-collar work; we use tools and get dirty. Consider that it takes five years of apprenticeship before an electrician is considered skilled enough to reach journeyman level and be trusted to work without supervision. What exactly is an apprentice, though? I like the Navy's definition of apprentice, "an enlisted person receiving specialized training."[3] An apprentice is someone who does not know anything about the trade. Apprentices must be taught and mentored to develop the knowledge, skills, and abilities to master the trade.

How many 90° bends will an apprentice electrician make in that time? How many 2 × 4 studs will the apprentice carpenter nail in place? How many copper joints will the apprentice plumber sweat? Each one will likely perform these skills thousands of times during the apprenticeship, while being supervised and counseled along the way. They will be shown the skill in school and have to demonstrate competency before being allowed in the field. Then, every year, they will return to the schoolhouse to continue to develop their knowledge base and expand their understanding of how an electrical system or a plumbing system or a framing system works. They will be measured and tested, and they will have to demonstrate their abilities both on the job and in written tests.

There are key differences between the apprenticeship of a construction worker and a fire service warrior that must be considered. The biggest difference is that the fire service does not have a standardized approach to what an apprentice is supposed to learn. Does completing a basic training program that brings the new recruit to the Firefighter II level of qualifications, spelled out in National Fire Protection Association (NFPA) Standard 1001, fulfill the apprenticeship? Do you need to be trained as an apparatus operator or have attained operations level training in certain specialties? How long must you function under the guidance of an officer? How many of our brother and sister warriors find themselves as the only member on duty, tasked to respond and make critical decisions with only a few months or years of experience? This happens far too often.

How many structure fires will the average apprentice firefighter face? How many times will you get to be the nozzle, the outside vent, or the irons position? Will your performance be discussed and critiqued in a way that allows you to learn not only from your experiences, but also from the experience of the senior members of your department? Obviously, this all depends on where you work. The department I am with currently responds to around 110 structure fires a year. In 2009 I personally responded to 25 working fires. In those 25 fires I served in a variety of roles, from engineer to nozzle operator to search team to ventilation team. I know there are brothers and sisters out there who are salivating at the idea of 25 working fires a year, in any role. That is really not a whole lot when you think about it, if our concern is building experience and decision-making capability. Many of the urban firefighters of the late 1970s and early 1980s saw a significant fire duty and built an intuitive understanding of the fireground through that repetition.

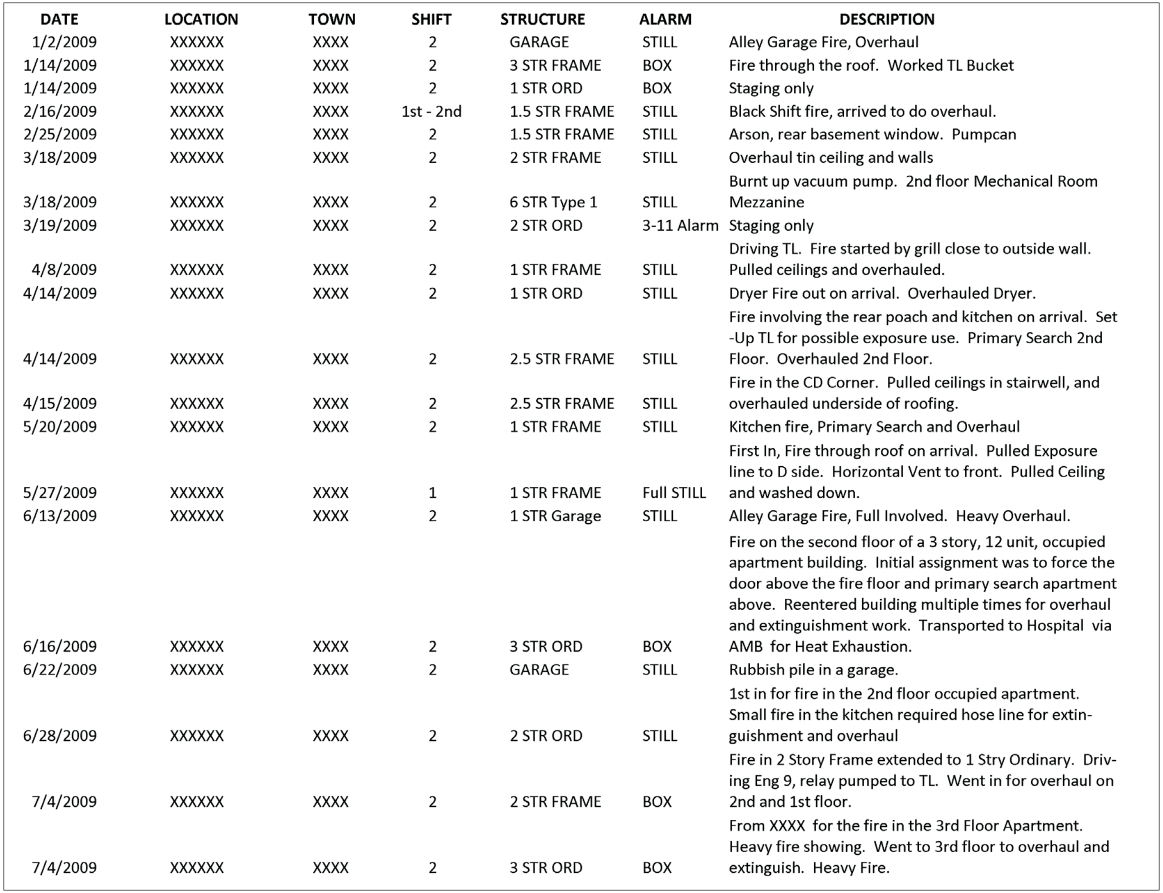
What we do as firefighters is comparable to the weight-lifting concept of sets and repetitions. When you start lifting weights, you spend time learning the proper form for the exercise and making sure that you have the ability to move the weight through space in the safest and most efficient manner. The more perfect practices of a particular movement, the more perfect the repetitions, the better your form gets and the more intuitive the process becomes. When you approach the bar for your first time to perform a dead lift, it is a much different process than that of an experienced lifter. Novices step up to the bar and spend time making sure their feet are in the right place and their grip is just so. Experienced lifters do all of this intuitively. They step up to the bar, and everything falls into place. Why? Practice! How many fireground sets and reps are you getting? How many fires are you responding to? How many different roles do you play? Are you learning from each one of those repetitions?

The log book

I know I responded to 25 working fires in 2009 because I keep a log book. I know that there are entire departments that are not seeing 25 fires in a year. In my previous department, I had 12 structure fires in four years. It is a reality that most agencies do not spend time "in combat" on a regular basis, which impairs our ability to develop our experience base. What are you doing to make the most of the fires you are getting? Are you recording your lessons learned and thinking about how you can improve your fireground decision making and performance? When I first found out I was going to be starting as a full-time firefighter, I sat down to have a drink with a friend and mentor, Deputy District Chief (ret.) Ed Enright of the Chicago Fire Department. He said, "Keep a journal." I did that intermittently in the form of writing about significant fires and blogging occasionally. In 2009, I finally decided to start keeping a log of the fires I go to every year. It is a great tool.

If you work out seriously, you keep a log book. You record your sets and reps and weight on the bar for your strength training. If you are running, biking, or swimming, you keep track of distance covered and time. The idea is to measure progress. Are you getting stronger and faster, or have you stalled? The log book lets you track that and then see what you are lacking so you can develop that skill. Fire service warriors can gain the same kind of advantage from recording the fires and significant incidents they respond to. The fire service warrior's log book can be a spiral notebook, a binder with loose-leaf sheets, or on a computer. I record fires and other significant calls in an Excel spreadsheet (fig. 5–1).

Most of us fulfill multiple roles on any fireground and change positions from shift to shift or call to call. How many sets and reps are you getting on the nozzle? How many as the engineer? How many as the outside vent? If you are shifting assignments regularly, keeping a log book gives you something you can refer back to. It is a tool to help you remember the lessons and learn from them. At a minimum, record the date, address, construction, and your basic observations. Write down what you did. If you are the engineer for the day, what route did you take to the call, and could you have chosen a better way? If you had the nozzle, were you able to make the push down the hallway? If not, why not? Was there a problem with line management, or was the hallway too hot?



DATE	LOCATION	TOWN	SHIFT	STRUCTURE	ALARM	DESCRIPTION
1/2/2009	XXXXXX	XXXX	2	GARAGE	STILL	Alley Garage Fire, Overhaul
1/14/2009	XXXXXX	XXXX	2	3 STR FRAME	BOX	Fire through the roof. Worked TL Bucket
1/14/2009	XXXXXX	XXXX	2	1 STR ORD	BOX	Staging only
2/16/2009	XXXXXX	XXXX	1st - 2nd	1.5 STR FRAME	STILL	Black Shift fire, arrived to do overhaul.
2/25/2009	XXXXXX	XXXX	2	1.5 STR FRAME	STILL	Arson, rear basement window. Pumpcan
3/18/2009	XXXXXX	XXXX	2	2 STR FRAME	STILL	Overhaul tin ceiling and walls
3/18/2009	XXXXXX	XXXX	2	6 STR Type 1	STILL	Burnt up vacuum pump. 2nd floor Mechanical Room Mezzanine
3/19/2009	XXXXXX	XXXX	2	2 STR ORD	3-11 Alarm	Staging only
4/8/2009	XXXXXX	XXXX	2	1 STR FRAME	STILL	Driving TL. Fire started by grill close to outside wall. Pulled ceilings and overhauled.
4/14/2009	XXXXXX	XXXX	2	1 STR ORD	STILL	Dryer Fire out on arrival. Overhauled Dryer.
4/14/2009	XXXXXX	XXXX	2	2.5 STR FRAME	STILL	Fire involving the rear poach and kitchen on arrival. Set -Up TL for possible exposure use. Primary Search 2nd Floor. Overhauled 2nd Floor.
4/15/2009	XXXXXX	XXXX	2	2.5 STR FRAME	STILL	Fire in the CD Corner. Pulled ceilings in stairwell, and overhauled underside of roofing.
5/20/2009	XXXXXX	XXXX	2	1 STR FRAME	STILL	Kitchen fire, Primary Search and Overhaul
5/27/2009	XXXXXX	XXXX	1	1 STR FRAME	Full STILL	First In, Fire through roof on arrival. Pulled Exposure line to D side. Horizontal Vent to front. Pulled Ceiling and washed down.
6/13/2009	XXXXXX	XXXX	2	1 STR Garage	STILL	Alley Garage Fire, Full Involved. Heavy Overhaul.
6/16/2009	XXXXXX	XXXX	2	3 STR ORD	BOX	Fire on the second floor of a 3 story, 12 unit, occupied apartment building. Initial assignment was to force the door above the fire floor and primary search apartment above. Reentered building multiple times for overhaul and extinguishment work. Transported to Hospital via AMB for Heat Exhaustion.
6/22/2009	XXXXXX	XXXX	2	GARAGE	STILL	Rubbish pile in a garage.
6/28/2009	XXXXXX	XXXX	2	2 STR ORD	STILL	1st in for fire in the 2nd floor occupied apartment. Small fire in the kitchen required hose line for extinguishment and overhaul
7/4/2009	XXXXXX	XXXX	2	2 STR FRAME	BOX	Fire in 2 Story Frame extended to 1 Stry Ordinary. Driving Eng 9, relay pumped to TL. Went in for overhaul on 2nd and 1st floor.
7/4/2009	XXXXXX	XXXX	2	3 STR ORD	BOX	From XXXX for the fire in the 3rd Floor Apartment. Heavy fire showing. Went to 3rd floor to overhaul and extinguish. Heavy Fire.

Fig. 5–1. This is part of my 2009 log book. It is just enough detail for me to remember the fire and think about what occurred.

How detailed your log is depends on what matters to you and what you want to learn. This is not for public consumption—it is your lessons learned and what you want to take away from every run you get. We have to make the most of the experiences we are getting. I spend a tremendous amount of time listening to the senior members of my department, from nozzle operator through captain, when they talk about the time when the department was seeing more than 300 fires a year. You need to learn from your experiences and those of others if you want to develop solid fireground decision making skills.

Becoming the journeyman

Our objective must be to achieve a journeyman level in our trade—become subject matter experts—and the objective of the department must be to get us there. A journeyman is "a person who has served an apprenticeship at a trade or handicraft and is certified to work at it assisting or under another person."[4] Our journeyman level fire service warriors still report to a supervisor, the company officer, for specific instructions and guidance, but they are expected to know how to perform the tasks without guidance. The foreman of an electrical contractor is not spending time telling the journeyman electrician how to bend conduit; the foreman is making sure that the strategic plan is being executed. Company officers fill the same role for our journeyman level fire service warriors; they tell us what to do, not how to do it.

For our apprentices to become journeymen, though, they have to master the skills we expect them to know. How to ventilate a building, perform forcible entry, and mount fire attack are crucial skills, but many of our apprentices must also master the skills of a paramedic or an apparatus operator, as well as advanced skills like auto extrication or hazardous materials response. All of this learning takes time and effort. As a department, are you conducting drills and scenario-driven training? Because of the reduction in working structure fires, unless we spend significant time on the drill ground and on studying the trade, our fire service warriors will not get the opportunity to practice their skills, synthesize their experiences, and develop the confidence to make timely decisions.

Seeing the Whole Picture

In this chapter I use the words *synthesis* and *synthesizing* quite a bit. Synthesis is “the combining of the constituent elements of separate material or abstract entities into a single or unified entity (opposed to analysis).”[5] Synthesis, stated another way, is when we create something new out of a collection of ideas, images, signs, or symbols. This book is a synthesis of everything I have read, seen, and studied over the last 20 years, including knowledge gained before I became a member of the fire service. Conversely, analysis is “the separating of any material or abstract entity into its constituent elements (opposed to synthesis).”[6] So, synthesis can be thought of as assembling a whole, and analysis is breaking something down into parts. Think of a jigsaw puzzle. You start with a collection of pieces in a box. Individually the pieces have little or no meaning. As you begin to assemble the pieces, however, a new “whole” begins to emerge in the assembled image. Most people who assemble puzzles engage in analysis as well. They study the picture on the front of the box so that they know what the whole is supposed to look like. In this way they are able to recognize patterns as they emerge and place them in relatively correct positions while finding more parts. When we synthesize into a new whole all the individual images on the fireground, it is as if we are trying to assemble a puzzle where there is no “top of the box” picture, and even if there is some concept of what the finished product will look like, someone keeps cutting pieces into different shapes while we are looking at them.

The fireground is a dynamic environment. We cannot rely on a single mental image of conditions or on one boilerplate plan for every fire. To make reasonably well-informed decisions, we need to understand the role that situational awareness plays in our ability to stay safe on the fireground. We must recognize the role that our personal condition plays in our capacity to make decisions. While it seems obvious to say, we need to develop a dynamic thought process that is an aid when we are analyzing the incomplete and imperfect information that is available on the fireground. To think in a dynamic fashion, we need to have a solid foundation in our basic skills; that is, we need to draw upon the fundamentals discussed in chapter 4. Without those fundamentals, we will not be able to develop reasonable self-confidence. As well-known survival skill instructor Bruce Siddle has said, “Confidence implies a mental state which is void of fear, anxiety or self doubt.”[7] If you do not have confidence in your skills and capability on the fireground, you are more likely to be overwhelmed. Being overwhelmed leads to the dreaded "paralysis of analysis." Our decisions have real-world, life- or limb-threatening consequences. If you make a bad decision, it can kill you or put you in a burn unit, result in the death or injury of one of our brothers or sisters or members of the public we serve, or cause the unneeded destruction of property. For some people, this very real factor inhibits their decision making ability. They worry about making the wrong decision and, in the end, delay or avoid making a decision altogether. They do not have the self-confidence and self-control described in chapter 1.

The US Marine Corps, in its doctrinal publication *Warfighting* (MCDP-1), addresses this very real concern.

> *If we fail to make a decision out of lack of will, we have willingly surrendered the initiative to our foe. If we consciously postpone taking action for some reason, that is a decision. Thus, as a basis for action, any decision is generally better than no decision.*[8]

This same concept holds true on the fireground. Fire is our foe; it is our enemy. Fire has the initiative from the outset. In the context of our combat analogy, every time we respond to a fire, we are responding to a surprise attack. If we are properly trained, equipped, and prepared, the fire does not have strategic surprise, but it will always have tactical surprise. Even if we arrive on scene and begin to take control, our enemy has the capacity to seize the initiative again, if we allow it to do so through our inaction or delay.

We have to acknowledge that decision making is a skill that comes naturally to some and not to others. Some people excel at analytical decision making, while others are more comfortable in the realm of intuition. This is an example of the wide variety of individual personal traits, not a value judgment. Just because you do not naturally make a quick decision does not make you a bad person, or even a bad firefighter. It is a trait you must recognize, though, to maximize your skills and be able to make critical decisions in a timely manner on the fireground. My wife hates the fact that I make decisions in 30 seconds or less. She thinks about options, analyzes (I would say agonizes), and in general hates to be rushed to judgment. When we first met, she did not understand how, if I was presented with a list of three options, I would pick something before she even finished reading the list. I finally explained it to her like this:

> *In my job I have to make decisions in a fraction of a second, and I have to trust my life with those decisions.*

When you look at life that way, it tends to streamline the thought process. My wife is a first grade teacher. Unlike the world we operate in, for her there is less often an event that has to be handled instantly to avoid disastrous (life- or limb-threatening) consequences. In fact, she cannot make a decision that fails to consider what the long-term effects may be on a particular student just to be expedient. Her attitude is that she is there to teach her kids how to be students just as much as it is to teach them phonics and math. With that understanding, she cautiously evaluates options to see how they will impact a particular student's learning environment over the course of years. Our two styles are the difference between *strategic planning* and *emergency response*. When we develop long-range strategic plans, such as capital investment, a change in standard operating guidelines (SOGs), or a potential reduction in service, we need to slow down the thought process and ensure that all options have been weighed and measured for their downstream effects. We must use an analytical thought process when it is appropriate. Conversely, when we are focused on emergency operations, we have to make decisions without 100% of the data and do it in a timely manner. The 60% correct answer right now is often more effective than the 100% right answer 2 minutes too late. Remember the old maxim, "Anything you do can get you killed, including doing nothing at all."

Recognition primed decision making

The need to make critical decisions quickly is the core concept of recognition-primed decision making (RPDM). RPDM is the explanation of how, in a time-critical situation, decision makers intuitively choose the best option, without benefit of traditional analysis. RPDM is principally the work of Gary Klein and his colleagues Roberta Calderwood and Anne Clinton-Cirocco.[9] RPDM is essentially a matter of using accurate situational awareness and assessment to intuitively choose a plausible course of action. Much of Klein's work has been conducted as research for the US military; however, it is interesting to note that one of the first studies published that described RPDM used fireground commanders as main subjects. Klein reports that in studies of the actions of fireground commanders, traditional analytical models of decision making are not used.[10] The observers noted that of the urban fireground commanders studied, 80% of their decisions involved a recognition primed decision rather than an analytical decision-making process. What is interesting, though, is that the average experience of these commanders was 23 years. Conversely, as cited in the same study, novice fireground commanders only used RPDM 46% of the time.

The basic concept is that people look for patterns. When we recognize a pattern, we choose an "action script," a response to the pattern that will allow us to handle the situation. As we gain experience, we save more patterns and more action scripts. We also sort our patterns and action scripts into pairs that we have seen work together before. Take, for example, a veteran firefighter who has been to hundreds of fires. The firefighter arrives on scene of a 1½-story ordinary constructed home. There is dark brown smoke pushing under pressure from the open front door, with smoke to the floor. The first-floor picture window is obscured by heavy smoke conditions. There is minimal smoke coming from the dormer windows on the upper floor. Heavy smoke conditions are visible in the rear of the building, but there is no visible fire. Our veteran pulls up and thinks "basement fire." This firefighter did not need to take a class to realize this; the knowledge came from seeing these conditions innumerable times. The experienced firefighter looks at a three-year apprentice and says, "Let's get the line around to the back and go through the basement door." Our veteran has a pattern that identifies where the fire is and another that says houses like this have an exterior entrance to the basement in the rear. The action script tells the veteran to attack from the basement entrance rather than trying to crawl across an already weakened floor. Once the company is back in quarters, the apprentice says, "How did you know it was a basement fire?" Our veteran, unless an active student of decision making, is likely to simply say, "Because I've seen it before."

In concluding remarks to his findings in 1989, Klein stated, "We do not believe that an RPD (recognition primed decision) process approach should be taught, since the RPD model is already a description of what people do."[11] Experience is obviously a critical component of a commander's ability to use RPDM. This may have been a fine approach when discussing "commanders" specifically, because, more often than not, fireground commanders have some measure of experience. Klein's study focused on commanders from larger urban departments. There are not as many structure fires as in the past, so how much experience do our incident commanders (ICs) have now compared to when Klein's initial study was done?

I have personally met chief officers who have admitted to having been inside less than a dozen structure fires in their career. How are we supposed to help our apprentice and journeyman level fire service warriors gain the experience needed to develop patterns and action scripts, when we cannot be sure that our commanders have had enough real-world exposure? In continuing his research into decision making, Klein developed a well- articulated explanation of intuitive decision making and a means of training people in the skill. Intuition is "direct perception of truth, fact, etc., independent of any reasoning process; immediate apprehension."[12] In other words, intuition is "just knowing" what is going on. In his 2003 book, *Intuition at Work*, Klein explored a means of training for intuitive decision making. He described a process of three key elements that can aid in training to make decisions intuitively.

1. Identify and understand the decision requirements of your job.
2. Practice the difficult decisions in context.
3. Review your decision-making experiences.[13]

The process works through what Klein calls "decision games." The idea is a simple one: identify the critical decisions you will have to make ahead of time and practice them. A lot of folks I know call this process "war gaming." This is a pretty common sense idea, but one that is not being formally taught to our apprentice fire service warriors with a standardized format. It occurs regularly in the form of the kitchen table talks that we have when a group of brothers and sisters sit down and someone says, "Okay, say we get a fire at the XYZ apartments—what are we going to do?"

Ideally, we have all sat through one of these tactics drills on some level. A company officer throws the scenario out there, and people start talking. Sometimes the conversation is directed at seeing how well acquainted we are with specific policies, procedures, or tactics, such as where the standpipe connection is or how the fire department controls on the elevator works. At times it is more of a roundtable of ideas, a "what would you do?" sort of discussion. This is a type of group decision game that allows the team to talk through ideas and see how best to prepare for a variety of tactical scenarios. It is a great opportunity to work through the difficult decisions in the safe environment of the firehouse. We can take the show on the road as well and drive through our still district or our second due area and do the same "what-if" gaming. The point is that there is no one right answer in these games. It is an opportunity to work on the process of decision making.

Within the concept of fireground tactical decision making, mental rehearsals play a vital role in developing the ability to make decisions on the fireground. Mental rehearsals are essentially the solitaire version of a decision game. As fire service warriors, we are all placed in circumstances in which we will have to make individual decisions. Firefighters must master the ability to take a mental snapshot of the situation presented to them and use that to make critical tactical decisions. Our business boils down to making decisions in a high-stress environment with life-and-death consequences. It could be a structure fire, a heart attack, or a technical rescue incident. The reality of operating under these circumstances can be overwhelming, especially for a firefighter just starting out. If we want our people to thrive in that kind of chaotic, stressful environment, it is imperative to train them in fireground tactical decision making.

Fireground Tactical Decision Making

Every one of us in the fire service has worked with someone who was cool and collected and always seemed to know what the fire was doing a second or two before the fire itself did. Usually those are the experienced members, the "salty dogs" who have been around the block and have a chest full of war stories to share. There is no question that experience is the single best way to master the art and science of sizing up a situation and making your tactical decisions. Experience comes with time, though, and we are not responding to as many structure fires as we have in the past. How do we develop experience in a firefighter who may only respond to a handful of structure fires a year?

We develop our experience through training. Training is our answer for a lot of situations. We are not born knowing the skills of the fire service warrior. We have to be trained to perceive, comprehend, and predict how a fire will develop and the impact that our actions will have on it. As stated previously, not everyone has a natural capacity for time-sensitive decision making. Unfortunately, just because that is not a natural skill does not mean that you as a fire service warrior will not be expected to make critical decisions in a timely manner. In many departments, we do not have decades of apprentice and journeyman practice to develop the memory bank of experiences that are needed for RPDM. The simple fact is that we must teach fireground tactical decision making to all of our members from day one of the academy. While it is hoped that a new candidate fresh from the academy will be under the tutelage of a skilled, experienced officer, there is always the possibility that even the new candidate will have to make a critical decision.

For example, Claire is a candidate, newly graduated from a local fire academy's seven-week training program. She has successfully demonstrated all the competencies for Firefighter II based on NFPA 1001. She shows up for shift on her first day and is assigned to the irons position on the truck. Her lieutenant is a 15-year veteran. At roll-call the lieutenant makes sure that Claire has an understanding of her role as part of the inside team and reviews the SOGs for truck operations at single-family-dwelling fires. The truck company Claire is assigned to sees regular fire duty, and the lieutenant knows that she will be seeing her first fire in short order. Claire does an excellent job of being the "new guy" and stays busy cleaning and studying the rig all day. She jumps up and does the dishes, pours coffee, and does not sit down at the kitchen table until all the senior firefighters have taken a seat. That night the house speaker cracks, "Report of a structure fire, 123 East Main Street." Claire is up and moving, she dons her turnout gear, and the rig is out the door. En route, the lieutenant turns his head and says, "When we get there, get ready to force the door for the engine while I make a quick 360." Claire confirms her assignment. The truck arrives, just as the engine is reporting a working fire in a two-story frame dwelling that appears occupied. Claire grabs her irons and moves to the front porch. She sizes up the door and, once the engine has water, makes quick work of forcing entry. As he dons his mask, the lieutenant says, "We're going to go upstairs and start a primary search." Claire dons her facepiece and hood and secures her helmet. She and the lieutenant make entry and head up the stairs as the engine company is making their way down the first floor hallway toward the fire room. Up on the second floor, Claire and her lieutenant begin a primary search. Claire is searching a bedroom when suddenly she hears a loud crash in the hallway where the lieutenant was standing by. She quickly finds that a portion of the ceiling and roof assembly have collapsed. Her lieutenant has been partially buried in drywall and roofing material. She has to start making decisions right now! Her first day, her first fire, and she is confronted with a situation that could very well make or break her career. Is she prepared for it? Ideally, she has been trained in Mayday procedures and in firefighter rescue techniques, but if she has not specifically been trained in decision making, will she have the capacity to make critical decisions? Will she be overwhelmed, or will she get on the radio, call the Mayday, and give her location, unit, name, assignment, and resources needed (LUNAR)? Will she be able to control the sudden sympathetic nervous system response, control her heart rate, and make sound decisions? None of our apprentice warriors (or even experienced firefighters who do not regularly see fire duty) will be able to do those things if they have not been given a system to use.

Training our members to be skilled in the art of tactical decision making must be a priority. We can empower our personnel to make timely decisions whether it is a natural skill for them or not. Teaching fireground tactical decision making is one way to develop the ability to respond to the dynamic fireground environment. We cannot just throw a hodgepodge system together, however. If a program teaching fireground tactical decision making is going to be successful, it must be based on a solid foundation.

The Boyd loop and combat decision making

There is a concept that fighter pilots, special operations warriors, and the US Marine Corps understand well called the Boyd loop.[14] The Boyd loop is named for Colonel John Boyd, US Air Force, a fighter pilot who wanted to understand how best to turn a tactical engagement in his favor. Col. Boyd was known as “40-Second Boyd” during his tenure as an instructor at the US Air Force Fighter Weapon School at Nellis Air Force Base in the early days of jet fighter aviation. As an instructor Boyd had a standing bet with any instructor or student at the school that from a position of disadvantage, with the other pilot in trail and ready to take a simulated shot, that he could reverse the engagement and, in less than 40 seconds, be in a position to shoot the other pilot out of the sky. Whichever pilot could capture 13 frames of gun camera footage of his opponent first would win $40.00. It is said that Boyd never lost that bet.

Boyd used an intuitive understanding of the principles of flight, and the energy state of his aircraft and his opponent's, to quickly make tactical decisions that would allow him to defeat any challenger. Boyd's initial development of these ideas were incorporated into the theory of energy maneuverability. This theory played a significant role in the development of the F-15, F-16, and F-18 aircraft. After his retirement from the Air Force, Boyd developed a series of briefings, the most famous of which is titled "Patterns of Conflict." In "Patterns of Conflict," Boyd articulates how decision making occurs and how in a battle situation the commander who can think quicker than an opponent will likely win the engagement. Boyd's work serves as a critical component of the US Marine Corps *Warfighting* manual.[15] Thus, the Marine Corps chose to include Boyd's ideas in what is the defining publication for how and why they exist.

It is a little known fact that Boyd's work served as the template for the US military's 100-hour campaign for the liberation of Kuwait during Operation Desert Storm.[16] The decision-making system that he developed has come to be known as the Boyd loop. In his briefings, Boyd calls the system the OODA loop:[17] observe, orient, decide, and act (fig. 5–2).

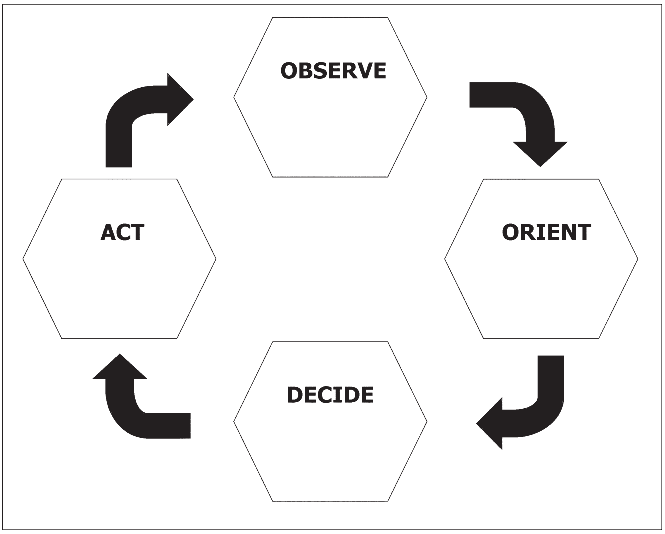


Fig. 5–2. The Boyd loop

Observe. To observe is to gather data by using your senses to get information about what is happening. In a nutshell, this means size-up. The key is that you need to develop a filter, so that you are not trying to gather too much information. You need to focus on the critical information for your assignment and let the rest of the chaos become a fuzzy part of the backdrop. If you allow yourself to be flooded with nonessential stimulus, your processing power will quickly become overwhelmed.

Orient. When you orient yourself, you synthesize the available information and your personal mind-set to deal with the problem. Put another way, your finely honed skills as a firefighter are matched up to what you have observed about the task at hand. This is where an understanding of your particular fireground assignment comes into play. An outside vent person has a different orientation than an engineer does.

Decide. During the decision making process, we rely on information and analysis to choose the best course of tactical action to achieve the strategic goal. You use your SOGs, your training, and your knowledge of the current fireground situation to decide from a set of options what you are going to do.

Act. Action is what it is all about. Firefighters are task-oriented creatures. We exist to *do* things on the fireground. The other steps in the loop have gotten us to the point of action.

There is simplicity in looking at the OODA process as a step-by-step method of analyzing a given scenario. It is important to remember that the OODA loop is not a linear process. It is a dynamic cycle that starts when we are dispatched and, if used properly, continues until we have finished critiquing the incident.

A similar system of decision making has been acknowledged in other fire service circles. The National Institute of Standards and Technology (NIST) describes a behavioral process of response by occupants to a fire in their building.[18] According to this process, humans follow a four-phase process in choosing how to behave in response to a fire or alarm:

Phase 1: the perception of cues;

Phase 2: an interpretation of the situation and risk;

Phase 3: a decision about action;

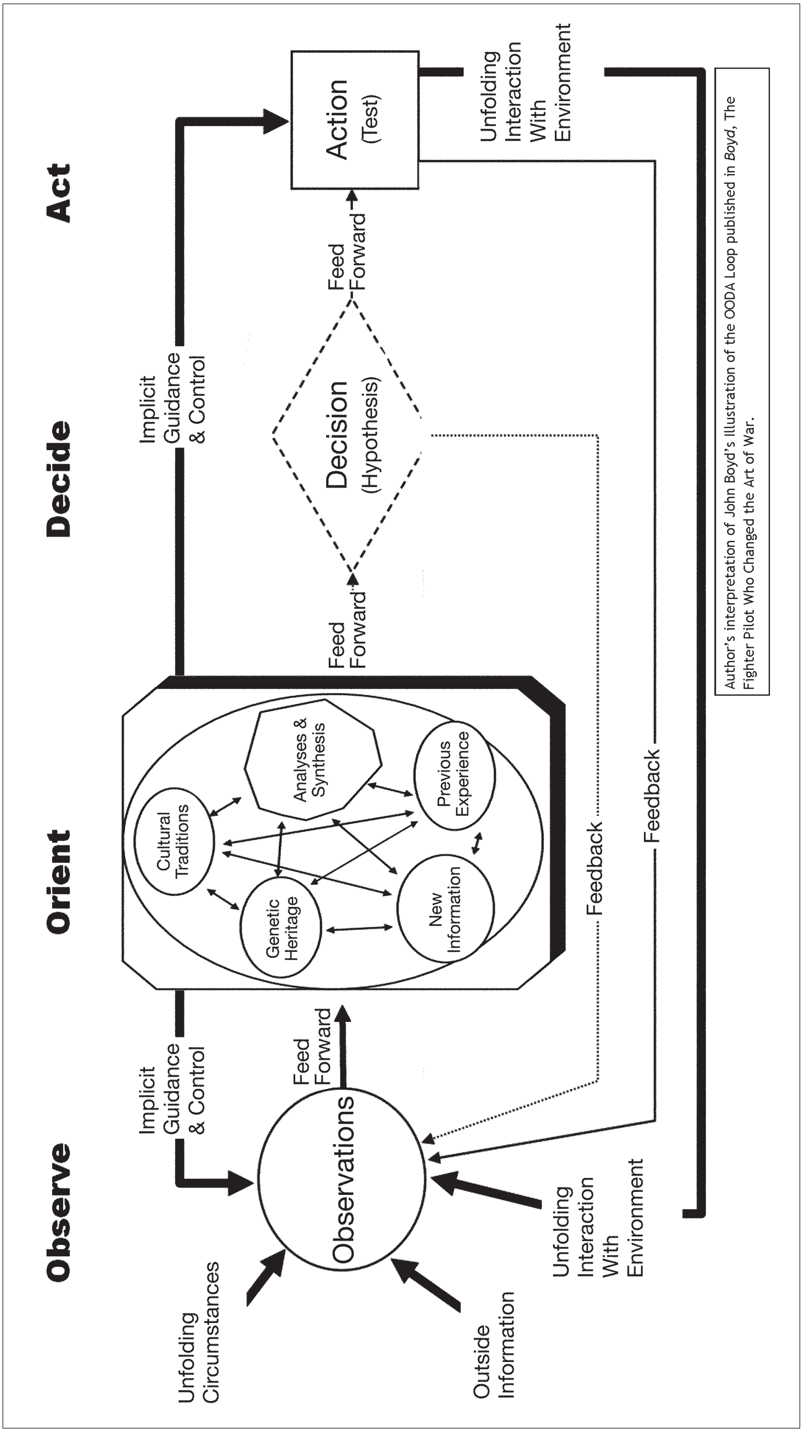
Phase 4: performing the behavioral action

The parallel to the Boyd loop is obvious. If our minds gravitate toward pattern matching and a systematic means of evaluating how to respond to a threat, we can help our members improve their decision-making capacity by giving them a model to use.

While our members may say, "I saw the house was on fire, so I put it out," when asked to explain how they make their decisions, the reality is that there is a complex process of decision making that occurs. RPDM explains how this occurs through pattern matching and serial evaluation of action scripts. We need to have the experience to have developed the patterns, so we are essentially playing the firefighter's version of the kid's game, "guess who?" If we do not already have the patterns in place, however, we will rely on the slower analytical style of decision making, in which options are considered side-by-side, to choose a best course of action. This is a slow process. Fire doubles in size every minute; we do not have the luxury of a slow, methodical thought process.

We want to train our apprentice fire service warriors to pull up in front of the fire building; see that there is a fire on the first floor; and recognize that because they are on the engine today and assigned the nozzle position that they will be responsible for the fire attack, pull the proper line, and then go put the fire out. That is an example of using the Boyd loop. The fire service warrior does not make one trip through the loop, however. As we continue the fight, we are constantly gathering more data, orienting ourselves to the threats that are developing, deciding on a course of action, and then acting. The cyclic nature of the loop is important because each of our actions should have a direct impact on the fireground, and we must therefore observe that impact and adjust our orientation and decisions based on how the environment has changed.

Boyd examined many factors in the OODA loop. His articulation of the cycle appeared in the briefing, "The Essence of Winning and Losing" (fig. 5–3), which has been referenced by authors including Chet Richards, whose presentations on Boyd's theories and their applicability to the business world are widely available.[19]


Observe
Orient
Decide
Act
Unfolding Circumstances
Outside Information
Observations
Implicit Guidance & Control
Feed Forward
Unfolding Interaction With Environment
Cultural Traditions
Genetic Heritage
Analyses & Synthesis
New Information
Previous Experience
Feedback
Feed Forward
Decision (Hypothesis)
Implicit Guidance & Control
Feed Forward
Action (Test)
Unfolding Interaction With Environment
Feedback

Author's interpretation of John Boyd's illustration of the OODA Loop published in *Boyd, The Fighter Pilot Who Changed the Art of War.*

Fig. 5–3. Interpretation of Boyd's articulation of the OODA loop.

If we use the Boyd loop successfully, we actually give ourselves more time to think. This happens because we are able to reduce the mental workload by making the entire decision making process more intuitive and developing a smaller collection of "menu options" to pick from. We are using a smooth and efficient thought process that allows us to maintain our focus and at the same time devote a portion of our conscious mind to continually working its way through the OODA loop. We can prepare ourselves to make better decisions on the fireground if we examine the work of Boyd and use the concepts he pioneered in our training. His mental model can serve as the basis for developing our decision-making capacity and our ability to implement RPDM skills. RPDM is based on pattern matching. Our brains love patterns and processes, and using the Boyd loop gives us a system to use when training apprentices in decision making. Much as LUNAR gives us a step-by-step mnemonic to remember key Mayday information, the Boyd loop gives us a process for teaching decision-making skills during our mental rehearsals, at our kitchen table talks, on the drill ground, and on the fireground.

Laying the foundation

In order for our members to be able to apply the Boyd loop successfully, a few prerequisites come in handy: well-designed and exercised SOGs for engine and truck company operations and a solid grounding in fundamental fireground skills. Most of our departments are already functioning with these prerequisites in place. For those that do not, it is not impossible to master fireground tactical decision making, but it becomes considerably more complicated.

Why are engine and truck company SOGs important? A firefighter, like a computer, has only so much RAM to work with. If you have to devote your mental energy to figuring out what tool to bring, or what your individual priorities need to be, you are behind in the loop already, and you are at a disadvantage when it comes to maintaining situational awareness. Our SOGs should help limit the number of times we need to go through the loop. They act as a flowchart for our common decisions, called a "prototype" decision in the vernacular of RPDM. If you pull up in front of a structure fire, what is your assignment? What are your tools? If this is not spelled out ahead of time, then when we get on scene, one of the first trips through the loop has to be wasted on choosing a tool. In the same manner, having a standing guideline for an Incident Action Plan (IAP) spells out our strategic goals, which frees the initial arriving officers from having to cycle over and over through the loop. Establishing SOGs ahead of time, which function in a similar way to EMS (emergency medical services) standing medical orders, cuts down on the amount of thinking you have to devote to a given problem.

It is much like going to a restaurant. You walk into a steak place with every intention of ordering a rib eye, medium rare, with a baked potato and a pint. Your friend who is with you walks in and is not sure what to order. The waiter hands you a menu, and what do you do? You glance at it, but unless there is something that jumps out at you as being better than what you wanted, you set it aside. Your friend, on the other hand, *looks at everything on the menu*! You knew what you were going to order, and after a quick examination of the "ground truth" (the specials of the day), you were ready to move forward. Your friend walked in without any thought of what to order and had to analyze all the various options. The end result is that you had to spend more time waiting to eat while this analysis took place.

Time is generally not of the essence when ordering dinner, but it certainly is on the fireground. If you have a huge menu to choose from, and the SOGs did not lay the foundation for choosing the right "meal," then you will waste time going through everything that you have learned to eliminate options that are not relevant to the situation at hand. This is particularly true if you have not yet developed the experience of a veteran who has the ability to make effective use of RPDM. Well-designed SOGs that our firefighters have trained on and exercised with will help to reduce the time needed in the observe, orient, and decide stages of the Boyd loop. The structure of the Boyd loop provides a mental model for fireground tactical decision making.

Let's say that my assignment is to be the outside vent person. Our SOGs take care of focusing me on what I need to observe and the orientation I am going to take, and they streamline the decision-making process for me, because I should know what my specific initial response tasks are. By having tool assignments paired with a fireground assignment, I have reduced uncertainty and the potential for confusion even further.

I arrive on the scene of a structure fire and observe a two-story, ordinary construction, single-family residence with fire showing from the Division B/C corner. My SOGs orient me to take a 24-foot extension ladder, a Halligan bar and a pike pole to Division C; throw the ladder to the second floor in a manner that allows it to be used for rescue or a secondary egress; ventilate the fire room with my pike pole upon being notified that the attack engine is prepared to make entry; and then open any exterior doors on the Division C side and make a primary search from the exterior, without entering an immediately dangerous to life and health (IDLH) atmosphere, until I have met up with my partner, whose initial task was to mirror my actions in the front of the building. How difficult is working through the OODA loop going to be? It should be pretty straightforward. My initial decision is limited to "How will I make my way to the C side." To make my way around to Division C, let's say for argument sake I choose to go down the Division D side of the building. I decide on that because I have already seen Divisions A and B, and I will be operating in Division C, so I have made sure that I have a 360° size-up of the fireground (fig. 5–4).

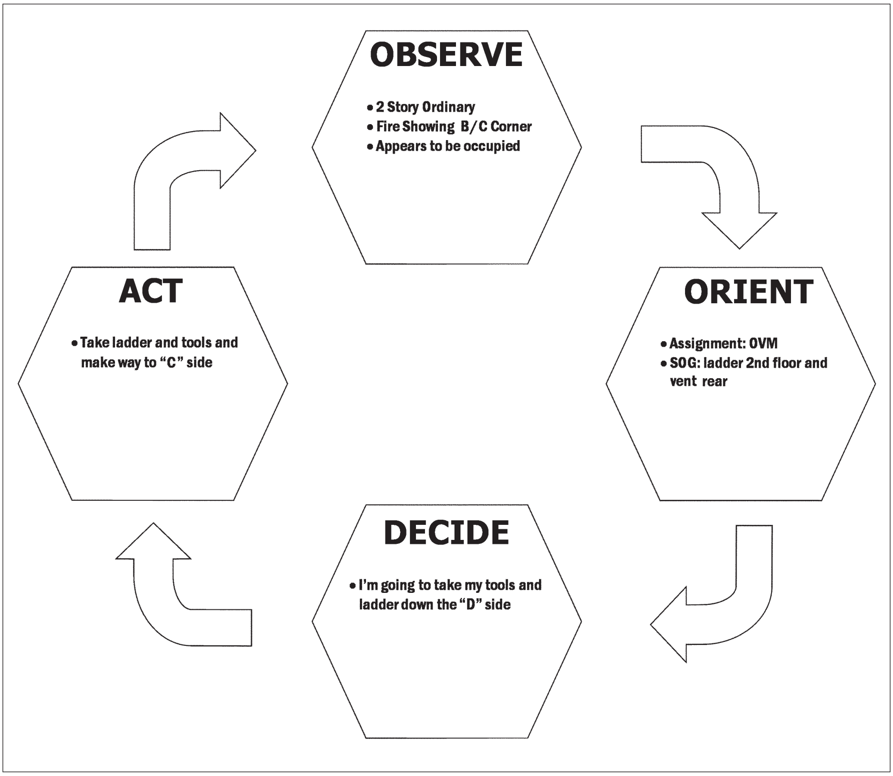

OBSERVE
• 2 Story Ordinary
• Fire Showing B/C Corner
• Appears to be occupied
ORIENT
• Assignment: OVM
• SOG: ladder 2nd floor and vent rear
DECIDE
• I'm going to take my tools and ladder down the "D" side
ACT
• Take ladder and tools and make way to "C" side

Fig. 5–4. The first OODA cycle for the outside vent person.

As I pass between the building on fire and the Division D exposure (I would call it a gangway, but using National Incident Management System [NIMS] terminology makes this accessible to everyone), I observe a woman hanging out of a second-floor window. There is no smoke coming from the window, she does not appear to be in any immediate danger. What do I do now? I go through the OODA loop. I observe a condition. I orient myself with my understanding of the circumstances as I know them from our SOGs and the current situation: there is a victim removal to be made that may become a life safety risk; our SOGs say it is the job of the second truck to ladder the Division D side; the second truck is on scene. Now I have to decide. Do I abandon my assignment of opening up in Division C to remove the woman, or do I make a quick radio call? *Command from Truck 1 OVM, I've got a woman hanging out a second-floor window on the D side. I'm continuing to the C side.*

Would you decide to bypass the woman in the window? Why? If you would not bypass her, then why would you choose to remove her? If you decide not to continue to the rear, and instead decide to begin removing the woman, what actions are you going to take? Would you decide to do something different if the second truck was a mutual aid company that you knew was five minutes out? This is the kind of mental rehearsal I have been talking about. It is an example of the decision games Klein advocates and that I believe are essential if you are going to prepare yourself well for the critical decisions you will have to make on the fireground.

There is no one right answer. Your decisions must be predicated on the observations you make based on the current conditions and the orientation you have assumed. Once you have made your decision, it is time to act. Let's say for argument sake that you look up at the woman and say, "Ma'am, there are two guys right behind me who are going to get you down, hang tight." You get on the radio and let command know that she is there and that you are continuing with your assignment (fig. 5–5). This is just one decision that the apprentice or journeyman fire service warrior may have to make on the fireground.

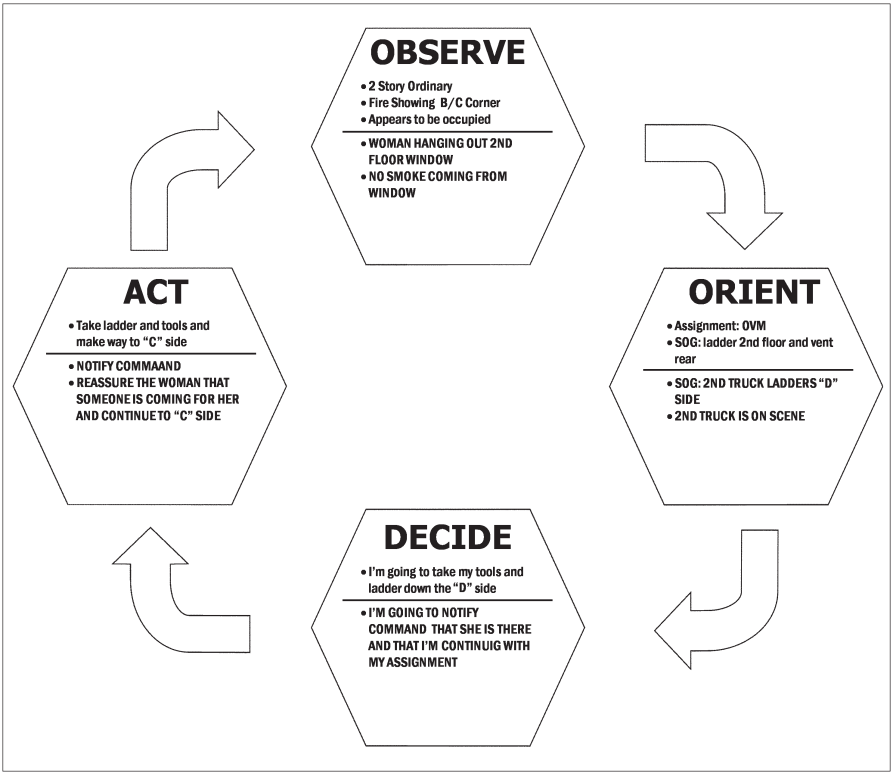

OBSERVE
• 2 Story Ordinary
• Fire Showing B/C Corner
• Appears to be occupied
• WOMAN HANGING OUT 2ND FLOOR WINDOW
• NO SMOKE COMING FROM WINDOW
ORIENT
• Assignment: OVM
• SOG: ladder 2nd floor and vent rear
• SOG: 2ND TRUCK LADDERS "D" SIDE
• 2ND TRUCK IS ON SCENE
DECIDE
• I'm going to take my tools and ladder down the "D" side
• I'M GOING TO NOTIFY COMMAND THAT SHE IS THERE AND THAT I'M CONTINUIG WITH MY ASSIGNMENT
ACT
• Take ladder and tools and make way to "C" side
• NOTIFY COMMAAND
• REASSURE THE WOMAN THAT SOMEONE IS COMING FOR HER AND CONTINUE TO "C" SIDE

Fig. 5–5. The second trip through the loop

You get around to Division C, and there is a man holding a child out of a second-floor window with smoke pushing out around him. The man is calling for help. What do you do? It is another trip through the loop (fig. 5–6).

Observe: *Man and child second floor need rescue.*

Orient: *Life safety takes priority over venting.*

Decide: *I'm going to let command know I have rescues to make and need help, and then I'm going to get the ladder thrown.*

Act: *Call for help. Throw the ladder; use the Halligan to heel it. Go get the child.*

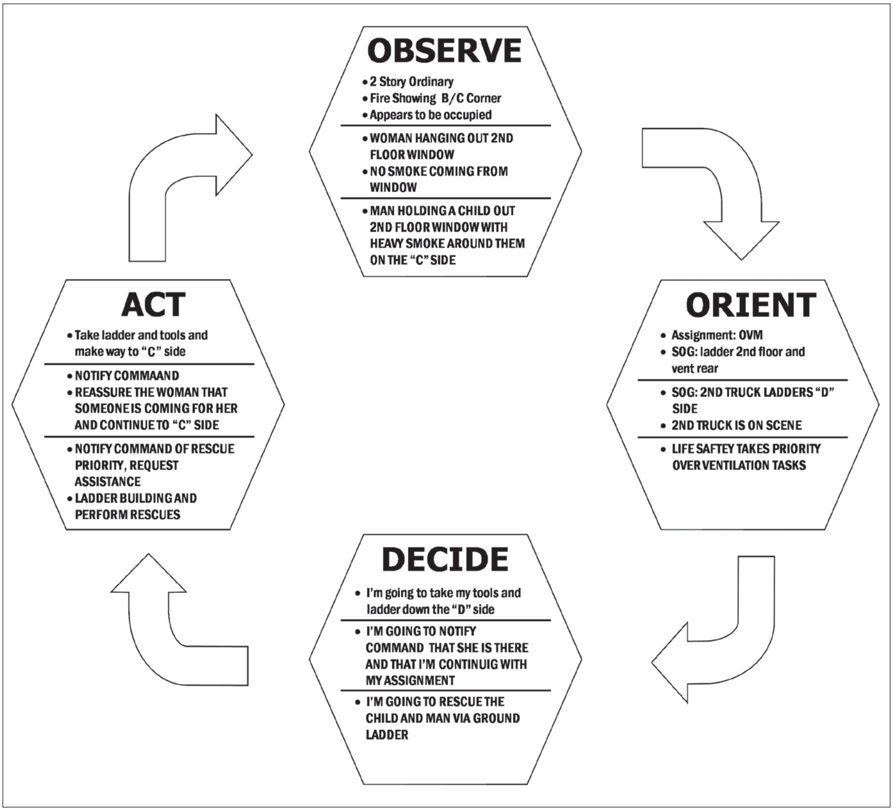

OBSERVE
• 2 Story Ordinary
• Fire Showing B/C Corner
• Appears to be occupied
• WOMAN HANGING OUT 2ND FLOOR WINDOW
• NO SMOKE COMING FROM WINDOW
• MAN HOLDING A CHILD OUT 2ND FLOOR WINDOW WITH HEAVY SMOKE AROUND THEM ON THE "C" SIDE
ORIENT
• Assignment: OVM
• SOG: ladder 2nd floor and vent rear
• SOG: 2ND TRUCK LADDERS "D" SIDE
• 2ND TRUCK IS ON SCENE
• LIFE SAFTEY TAKES PRIORITY OVER VENTILATION TASKS
DECIDE
• I'm going to take my tools and ladder down the "D" side
• I'M GOING TO NOTIFY COMMAND THAT SHE IS THERE AND THAT I'M CONTINUIG WITH MY ASSIGNMENT
• I'M GOING TO RESCUE THE CHILD AND MAN VIA GROUND LADDER
ACT
• Take ladder and tools and make way to "C" side
• NOTIFY COMMAAND
• REASSURE THE WOMAN THAT SOMEONE IS COMING FOR HER AND CONTINUE TO "C" SIDE
• NOTIFY COMMAND OF RESCUE PRIORITY, REQUEST ASSISTANCE
• LADDER BUILDING AND PERFORM RESCUES

Fig. 5–6. Your next OODA cycle

In this case, you are "calling an audible" and changing the fireground IAP by abandoning the ventilation assignment you have been given. You relay this information to the IC so that the IC can assist you with resources to get the man and child rescued, and to let the engine company know that the ventilation they were expecting is not going happen. You have made a reasonable decision based on the ground truth and adjusted accordingly. You have contributed to the implicit coordination of the entire team by communicating your observations and the actions you are taking. One goal of the Boyd loop is improving that implicit action. You do not need to ask permission to change the play if the priorities are already established, but you must communicate those actions so that the rest of the fireground team stays coordinated.

When you use the Boyd loop as a decision making model, you synthesize your understanding of conditions based on your observations, the strategic and operational priorities that have been established in SOGs, and your fundamental confidence in your skills to make the best decision. Having a solid grounding in fundamental fireground skills is the key to reducing the amount of "static" in the action phase of the loop.

Now, let's say you have made it around to the C side without encountering any situations that might have caused you to divert from your SOG-based assignment. There are no people hanging out of windows, there is no 10-foot-high fence to overcome, and there is no dog in the backyard you have to worry about. Your first task is to throw a 24-foot ground ladder to a second-floor window so that it can be used for rescue or as a secondary egress. Can you do it? Do you know how to throw a ladder by yourself? Do you have the strength? Do you know where it is supposed to go for rescue? If you cannot answer yes to all of these questions, then you are once again slowing down in the loop. Now you have to take a trip through the loop to figure out how you are going to accomplish the task at hand. The basics should be so ingrained that there is no need to waste any time in the Boyd loop thinking about them. They are called *fundamentals* for a reason. They are fundamental to being able to do your job.

If you are prepared through regular training how to throw a ladder, perform a VES (vent, entry, and search), stretch a hoseline, operate a 2½-inch exposure line by yourself, or perform any other fireground task, you are speeding up how long it takes to get through the loop (fig. 5–7). You are compressing time by removing unnecessary items from the menu and giving your brain more time to focus on the things that are 100% specific to the situation you are in: sizing up the building, reading the smoke, or observing the effects of your fellow firefighters' actions, to name just a few. You are relying on both physical and mental muscle memory to intuitively allow you to accomplish your mission. Muscle memory is your friend. It worked for Nolan Ryan, it works for LeBron James, and it remains a proven tool for combat sharpshooters. It will work for you.

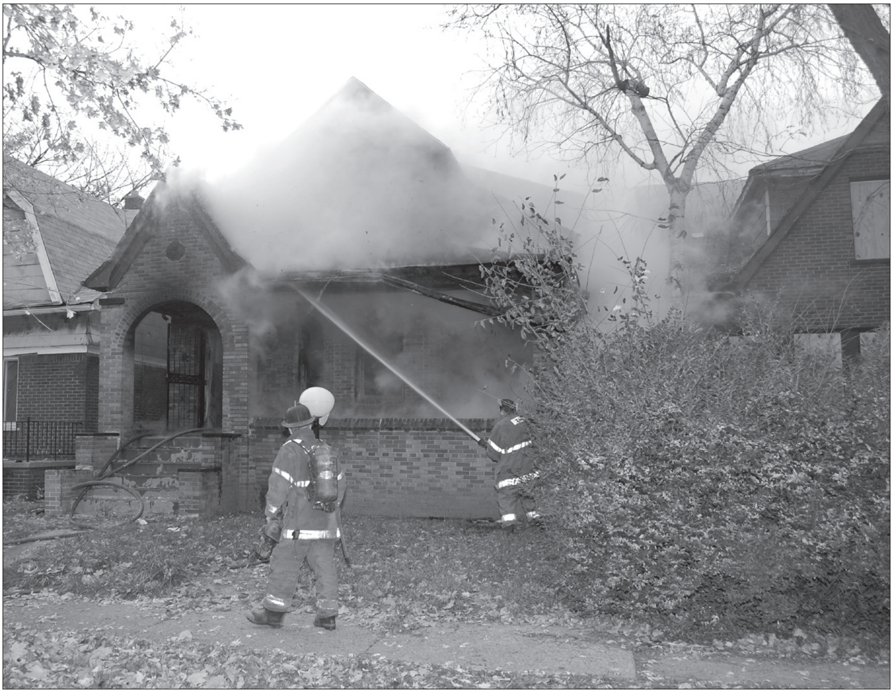


Fig. 5–7. The firefighter in the foreground has been given the assignment to ladder the attic for deployment of a second line. Time will be wasted on the fireground if the firefighter is thinking, "How am I going to get in that window?"

Beyond the Loop: Boyd Theory on the Fireground

Beyond the use of the OODA loop as a tool to develop decision-making skills, a deeper exploration of Boyd's theory of warfare may help us develop the concept of implicit coordination that was described in chapter 4. Implicit coordination, or, as I have called it, team situational awareness, allows our fire service warriors, their fire companies, and the whole of the fireground team to act with a minimum amount of explicit guidance from the IC, while still coordinating actions to ensure a rapid and efficient fireground operation. I am sure there are folks asking themselves, "What's wrong with explicit guidance?" There is nothing wrong with an IC giving explicit guidance to mitigate a condition that is not already being addressed; that's when it's supposed to be used. Where the problem comes up is when the explicit guidance is required on the fireground. If I am the officer of the first due engine company on a working fire in an occupied one-story frame, and I arrive to find that I have exposure problems, I should not have to wait for the chief to get there and call for help. We have to give authority to the people on the scene to respond to the ground truth, and we have to make sure that they have the training to do so under the guidelines that our department has established.

Boyd's ideas have found a home in the military with the advancement and application of maneuver warfare theory. Maneuver warfare can most easily be thought of as the method the German Army used in World War II in the well-known Blitzkrieg attacks into Western Europe. In modern times it has been thought of as the application of the OODA loop to the entire battlefront. Rather than simply "turning inside" another fighter aircraft, commanders are applying the concept to warfare in general. This happened during the 1991 Gulf War. As the US spokesperson for Central Command said at the time, "We kind of got inside his decision cycle."[20] This method of war works by decentralizing command and empowering subordinate officers to make critical decisions about how they will accomplish their mission. The assignment from the commanding officer comes down in the form of a "commander's intent" or, as the concept was used in the German Blitzkrieg, *Auftragstaktik* or "Mission Tactics."

In the monograph, "A Critique of The Boyd Theory—Is It Relevant to the Army?", Major Robert B. Polk says the following:

> *According to Boyd, mission tactics may be thought of as a series of contracts between superior and subordinates. The superior pledges to make his desired result crystal clear and then leave his subordinate maximum latitude attaining that result. The leader also pledges to back him up when he makes mistakes so long as they are mistaken initiatives and not the result of passivity. The contract of course includes subordinate responsibilities as well. The subordinate pledges to pursue the superior's goals vigorously in order to achieve the operational aim.*[21]

While a student of maneuver warfare theory or military history may find these concepts intriguing, we should ask, "How does this apply to the fire service?"

We have to accept that the fireground and the battleground have striking similarities. The single divergent point is that most often the fireground lacks a human antagonist. Despite this fact, we are committing ourselves, and our people, to attack an "enemy" that will overrun the battleground and kill us if we do not act swiftly and effectively to cut it off. When we examine the fireground in this way, as a battle, it should become obvious that the speed with which we stabilize the incident by confining and then extinguishing the fire has a direct effect on the likelihood of one of our brothers or sisters being injured or killed. By quickly extinguishing the fire, we reduce the amount of time that we have to contend with a hostile atmosphere. The less time we are exposed to a hostile environment, the less opportunity we have to get hurt. This is like the time component of time-distance-shielding, which serves as our rule of thumb to limit the potential harm from radiation exposure. The shorter our exposure, the less potential there is for us to be harmed. We should be striving to perform our job of saving lives and protecting property while limiting, as much as can be reasonably accomplished, the incidents of fireground death and injury.

We can maximize our ability to rapidly control and extinguish a fire by decentralizing decision making on the fireground and allowing our people to act with initiative through implicitly coordinated priorities. We can improve the efficiency of the fireground team and make the decision making "workload" more manageable. Rather than explicitly controlling the actions of all of the fireground companies, the IC serves as a facilitator who examines the unfolding conditions and prepares alternative courses of action. At the same time, the IC still exerts the required command presence by keeping informed and, at a minimum, implicitly approving the decisions of subordinate leaders. If needed, the IC can explicitly order a change in strategy or operational mode, or disapprove a particular tactic if it does not support the overall mission.

Boyd theory for the fire service warrior

We begin by observing. This starts with the initial dispatch. When we hear the address and the nature of the call, we should immediately begin to work our way through the Boyd loop. You should observe the address and orient yourself to the types of buildings that are in that area. If you work in Washington, D.C., and get dispatched to 1600 Pennsylvania

Avenue, you should have a pretty good idea of what is located there. Are you responding to a residential, commercial, or industrial area? You already know your riding assignment and the various tool assignments that go along with that position. What was the type of call dispatched? You will likely be expected to bring different tools and conduct different actions for an automatic alarm than for a report of a sixth-floor fire. Once you are oriented to the likely scenario, you can decide which SOGs and tools are appropriate based on the actions you will be most likely expected to undertake. Our observations continue en route as we hear radio traffic from other companies and the dispatcher. If you are observing (hearing) reports of people trapped, you will orient yourself differently than if the first engine arrives and you observe (hear them report) “nothing showing.” When we arrive on scene, our observations begin to add visual cues and provide the direct inputs that we use to synthesize our understanding of the fireground.

How we observe plays a direct role on what we observe. A logical system will guide the observation process and help prevent you from becoming overwhelmed by the amount of visual stimulus. When I arrive on scene, I look at the big picture first. What is the building construction? What do the smoke conditions tell me? Where is the fire located? Can I approach the scene safely? I then collapse my visual scanning to areas that are specifically relevant to my assignment.

If I am the nozzle operator, then I look for where I am going to make entry and what my secondary egress is. Where is the fire located? How much fire do I have to put out? Is the building tight or has it self-vented? If I am the outside vent person, I start by looking for any laddering needed for rescue, rapidly followed by what ventilation opening will support the attack of the engine. If I am assigned to the inside crew, I look for the most direct route to the fire area to begin a primary search. In addition, this is where I start paying attention to any unique hazards that may be present, like compressed gas cylinders, dogs, power lines down, and any other hazards that will impede my progress or endanger any other member of the fireground team.

Boyd placed a particular emphasis on the orientation phase of the OODA loop because our orientation serves as the prism through which we view the world around us. If you look at how Boyd articulated the loop, you will see that the orientation phase is made up of multiple components: cultural tradition, genetic heritage, previous experience, new information, and analysis and synthesis (fig. 5–8).

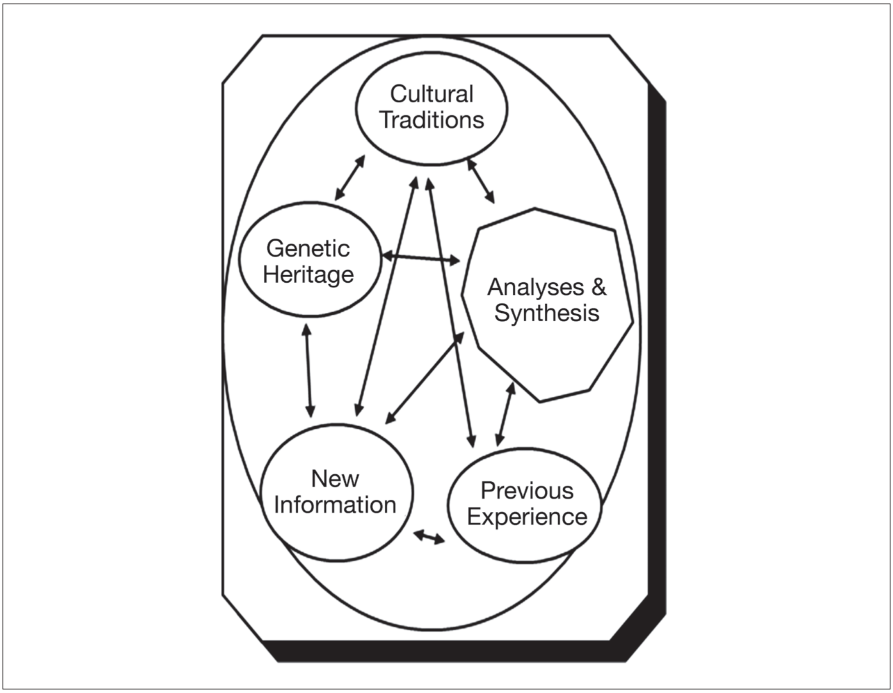


Fig. 5–8. The orientation phase in detail

When we examine the interplay of these factors, cultural tradition plays a direct role on how we handle incidents. In the United States, we practice a very aggressive form of interior fire attack that regularly places the fire service warrior in a high-threat environment. While we practice a risk-versus-benefit analysis, the fact remains that we engage in a more aggressive interior attack than occurs in other parts of the world. If your cultural heritage tells you, "Get in there and do a primary!", you will behave differently than if you cultural heritage says, "This building may not be worth risking our lives on." I'm not making a value judgment about how anyone manages their risk profile. Every department, every IC, and every fire service warrior must make these decisions. My observation in this case is that we must be aware of the reality that our cultural tradition plays a role in how we size-up the building, and we should assess what actions we will take with a critical eye to that.

Previous experience and training obviously play a role in our ability to synthesize and understand the whole fireground operation. This is where our ability to apply our knowledge and experience of building construction, fire behavior, and reading smoke, as well as our understanding of specific SOGs, comes into the picture. New information, along with analysis and synthesis, are where our specific riding assignment and the current fireground conditions come into play. Another way of expressing this is that our orientation will be directly impacted by our personal condition and our relative relationship to the ready position.

If you know your role on the fireground, the orientation phase is where the Boyd loop guides how you will respond to the observations you make. If you have self-confidence and self-control, the orientation phase will limit the number of decisions you have to make. How quickly you are able to orient yourself to the task at hand speeds the process of deciding and then acting. Once you act, you begin observing again, because your action impacts the conditions on the fireground (ideally), and you begin the process of analyzing and synthesizing based on this new set of conditions.

Boyd theory at the company level

At the company level, applying the Boyd loop leads to a smooth flow of actions. Engine companies benefit from being able to operate with initiative to get the first line onto the seat of the fire. We should have any reasonable means at our disposal to make this happen. Having a blanket directive like "we only attack from the unburned side" may mean the fire would be allowed to grow while we stretch an extra hundred feet to get to the rear of the building for entry, when moving in through the front door would have knocked the fire down in seconds. As in any fire company, the engine company officer is the ultimate supervisor of the attack. It is the engine officer who will direct the where and how of entry in many cases. When we consider how often the attack team will only be made up of an officer and a nozzle operator, we have to accept that the officer may have to exert more explicit control. An apprentice firefighter may not be in the best position to judge when to open the nozzle or when to push in. This direction may have to come from the engine officer.

While engine companies can practice a very explicit form of control, with the engine company officer directing specific actions, this is rarely true for truck companies. In most fireground scenarios, the truck company will split into multiple elements, an inside and an outside team. Implicit coordination is critical, because the direct supervisor, the truck officer, is not in direct contact with the outside team. Does this mean that when the outside team vents the rear of the building that they are "freelancing"? No. They are operating implicitly within the defined role of the SOGs and truck company procedures, and their specific actions are based on their fireground tactical decision-making skills and their application of the OODA loop.

Boyd theory at the incident command level

At the incident command level, Boyd's concepts of decision making become best expressed in the idea of "intent," or in other words, an expression of strategic objectives. Consider the battle plan of General Tommy Franks in the 2003 invasion of Iraq. His orders were to advance rapidly toward Baghdad, engaging significant elements of the Iraqi Army, if needed, and bypassing pockets of resistance if possible. He did not issue orders in the same way they were issued in the Vietnam War to take and hold specific terrain. He allowed subordinate commanders the latitude to address the ground truth in their area of operations, as long as they were supporting the overall intent of the operation.

For the fireground IC, the same consideration should hold true. In applying Boyd's theories and embracing implicit coordination through SOG-based IAPs, we allow the company officer, or the individual firefighter, the latitude to choose how best to accomplish the strategic objective. It should be obvious that one person will only be able to make a limited number of timely decisions, and that as an IC, your role is to operate at a strategic level. This is true whether we are dealing with a one-line room-and-contents fire in a ranch-style, ordinary construction, single-family home, or a county-wide natural disaster. If you, as the IC, are deciding which windows should or should not be vented, then you haven't done your job to train your members to make these decisions, which should have been done well before the call came in.

Developing Fireground Tactical Decision Making Skills

Applying the Boyd loop as a fire service warrior is a matter of developing an intuitive understanding of the fireground. This is a way of training our people to make those recognition-primed decisions that Dr. Klein has written so extensively on. We have already discussed how RPDM has been shown to be most effective for those individuals who have the experience to form an intuitive understanding of the fireground dynamic. The goal of fireground tactical decision making is to use the Boyd loop mental model as a framework to develop RPDM-like decision making skills. Like any skill, your ability to use fireground tactical decision making is directly related to your competency and confidence. Even if you have great SOGs, riding positions, and tool assignments, and are an all-star firefighter, your ability to use the Boyd loop to make tactical decisions on the fireground will be limited if you do not practice with it. Think of it this way: your brain and your backside are both muscles, and if the only exercise they get is sitting in a recliner watching TV, how prepared do you think either of them will be when it comes time to go to work? So, how do we incorporate using the Boyd loop into training?

First and foremost, our training needs to go beyond just teaching the SOGs and the fundamental skills. Once your members know what their assignments are and how to perform them, their training needs to get more challenging. Both complexity and speed must be increased if your firefighters are going to continue to develop. Present the scenario in which the outside vent person has to decide what to do about the woman hanging out the second-floor window. Have your crew pull up in front of your tower, or an acquired structure, or even someone else's firehouse if that is your only option, for a simulated fire, and have a role-player in front of the building pointing to a second-floor window, saying, "My five-year-old is in the room! Get him!" What do they do? How do they move through the OODA cycle to get to the action phase? Build these unexpected developments into your scenario-based training. Throw in an evacuation drill every now and again. The late Francis Brannigan wrote continually about how every sailor in the Navy is taught how to abandon ship. How many of us are practicing how to make an orderly tactical retreat if the air horns start blasting?

There are bound to be firefighters who resist challenging training, or training in general. There are two reasons for this: first, they are worried about being embarrassed, and second, they do not understand why it is vital. Embarrassment tends to arise from not feeling secure in one's ability to perform a required task. Not understanding the importance of the training comes from seeing the department's values as incoherent or inconsistent. Fixing those underlying issues probably needs to be a priority. Remind them that just because you have been a firefighter for 10, 20, or 30 years does not mean you know it all or are perfect.

Every professional sports team practices all season long. They are making millions of dollars because they are so good at what they do, and they still practice. Why? Simply because during each game they play, they must be ready, not just to run the play that has been called, but also to react to the actions of their opponents. Set aside our football example for a moment and think about professional hockey. There is likely no faster sport in the world. Skaters must play both offense and defense, and they must react intuitively to the way a play is developing. When you watch a Stanley Cup championship series, you see a caliber of play that shows that every player on the ice knows what is going on around them at all times. In hockey there are essential skills, systems that the defense or offense use in general to move the action of the game forward. A power play, such as when one team is playing with five skaters and the other has only four because of a penalty, is an example of this. In the defensive zone, the skaters on the penalty kill (the team that is skating shorthanded) will default into a box- or diamond-shaped pattern to try to block shots and keep the opposing team from scoring. At any moment, though, the initiative may change if the team on the penalty kill is able to gain control of the puck and either clear the puck out of the defensive zone to allow for a line change (where fresh skaters are able to replace those who are reaching the end of a shift) or go on the attack and attempt to score. This is why in hockey there is far more talk of systems than there is of plays. Their system is the SOG by which skaters are allowed to intuitively operate and react to the action of their opponents and the individual initiative of their teammates. The practiced plays give structure to the general idea of what a skater should be doing and where he or she should be on the ice, based on play position. The "how" is allowed to develop based on the way things are happening on the ice.

In military special operations and units, these same ideas are understood and practiced. Members of the Navy Special Warfare and Army Special Operations community train constantly. Military professionals recognize that in their job, skills—such as shooting into a crowded room filled with terrorists and hostages or implementing an immediate action drill (IAD) to break contact in event of an ambush—are perishable and must be practiced consistently to retain the needed precision. At the same time, the repeated drill of a dynamic entry to rescue hostages allows the individual operator to develop an intuitive understanding of the flow-through that has to happen. There is no playbook that says the first person who enters the room must move through to the rear of the building. As members enter, they begin to clear the building, and if they confront resistance that cannot be immediately eliminated, the other members of the team move past while allowing the person in front to deal with a particular threat. These examples of professionals in very exclusive organizations show why we as firefighters need to take training seriously.

Hotwash

Once the drills are done, do a hotwash on the tailboard and talk about what went well and what can be learned. The idea of a hotwash or an after-action review (AAR) is to highlight the strengths of an operation or a particular exercise and the areas that need improvement. This is different from a critique. I tend to think of it this way: the hotwash is for the task and tactical creatures (the fire service warriors) to examine the *who*, *what*, *when*, *where*, *why*, and *how* while everything is fresh in the minds of the participants. We all know that, over time, recollections can change based on what we choose to remember and what we choose to ignore. The saying, "never let the truth get in the way of a good story," is a fine perspective if we are sitting around with the brothers and sisters having an adult beverage outside of working hours. There is still learning that can occur when we tell "war stories," even if they are embellished or facts get blended together. However, when we are on duty, ignoring gaps in judgment or weakness in executing a critical fireground skill will not help us improve. We need to strive to improve as individuals and as a team. How direct those sessions are will depend on your corporate culture. My belief is that sparing someone's feelings is less important than making sure that a dangerous error in a critical fireground task is fixed. To quote my good friend Lt. John Tabisz of the Darien Woodridge

Fire Protection District, “We aren’t delivering pizzas here.” I will make this caveat, though: if you are criticizing the person, and not the action, you are going in the wrong direction and will alienate people.

We must have respect for our brothers and sisters as well as the neighbors we serve. When we hotwash the actions that took place on the fireground, the goal is to improve performance. There are those who say that correction should take place behind closed doors, and that an individual’s mistakes should not be called out in front of the group. I disagree. Discipline should take place behind closed doors. If you have a firefighter who is chronically late or sloppy in uniform dress, or does not complete the required daily duties without being harangued, those are the kinds of counseling sessions that should be conducted behind closed doors. Calling out what are essentially attitude problems should be done with some respect for the member who is being counseled because you need to get to the bottom of what is going on. Maybe Tom is having a hard time at home. Maybe Mary’s kid is failing in school. Maybe George has been drinking too much because he is trying to cope with the loss of a parent. These are all situations that should be handled carefully and cautiously.

Corrective instruction or highlighting a tactical mistake can have an impact on the whole of the fireground team, and we miss the chance for the group to learn if that is hidden behind a closed office door. At the risk of repeating myself, the hotwash cannot be personal. Let’s say we get called for a fire in an occupied split-level home, wood frame with brick veneer. The engine is making a push into the house to attack a fire in the lower level. Lenny arrives on the truck and is assigned to vent. He gets off the rig, runs up, and smashes the front picture window. Heavy smoke pours out, and fire quickly begins to lick out of the door. The engine company has to back out because the fire is being drawn on top of them. Lenny’s venting of the window behind the engine company, which caused the fire to be pulled over their heads, is not something that should be handled behind closed doors.

> “Lenny, why did you vent the picture window?” the battalion chief asks.
>
> “Ummmm. . .” Lenny doesn’t want to answer. He knows he made a mistake.
>
> “Remember folks, we cannot vent behind the engine until the fire is knocked down,” the chief says to everyone.

Has the chief embarrassed Lenny? Maybe, but if as a department you are cultivating a culture of excellence, Lenny will take it in stride, knowing that he messed up and needs to fix the problem. Everyone else has gotten a valuable reminder about not trying to burn the engine company. That exchange is a reasonable one.

"Lenny, you're an idiot! Why did you vent the %$#@ window behind the engine? You could have gotten someone killed!" has an entirely different context to it. It is the same essential message about not venting behind the engine, but it has been turned into a personal attack on Lenny.

In a perfect world, when asked why he vented the picture window, Lenny might reply, "Chief, I screwed up. Guys, I'm sorry, I did the whole 'moth to the flame thing' and was not thinking. It won't happen again."

We all make mistakes. Every single one of us screws up. I once turned a 95-foot tower ladder into an L- shaped alley, blindly following the engine to a reported fire. The captain of the engine realized that the fire was outside the building in the rear and had his engineer turn into the alley in order to extinguish the rubbish and the fence that were on fire. I was driving the tower by myself and followed along like a puppy, rather than staging on the street. I had gotten tunnel vision and was just thinking, "Stay with the engine." When we got back to the firehouse, I went into the captain's office and said, "Sorry. I screwed up. I don't know what I was thinking, but it won't happen again." Knock on wood, I've been able to keep that promise.

If we do not have an honest hotwash, we risk losing the chance to learn the lessons. In his book *Inside Delta Force*, Eric Haney talks about learning how to conduct room-clearing exercises. Four men enter the room and have to engage an unknown number of hostile targets with cutouts of hostages mixed in. If a member of the team accidently shot a hostage, it, "meant an immediate 'Chinese Self-Criticism Drill.' Everything stopped, and you had to explain to the instructor and your teammates why you shot a good guy."[22] We have to own our mistakes if we are going to improve. No one shows up to work thinking, "Boy, what can I screw up today?" We all show up to do what we are called on to do. We have to acknowledge, though, that sometimes we fail. We fail because we do not know how to perform a skill, because we do not have the physical capacity to do what is asked of us, because we are not focusing on our job and doing our best, or because we do not have perfect knowledge. Regardless of the reason, we must identify what caused us not to be successful, and then fix the problem. People's lives depend on us, and if we are going to embrace the virtues of honor, courage, and duty, we must own our mistakes and strive to do our best.

Mental rehearsals

Beyond department- or company-level training, each of us needs to do our own training, including mental rehearsals. You need to spend time thinking about what you will do if presented with a particular circumstance. Pick a building in your district and think about how you would handle various situations. I play the what-if game constantly, and I find it helps me make decisions on the fireground more smoothly. My wife was not bothered by the fact that I picked out tuxedos for our wedding after looking in one store for less than a minute. She understood that it was part of how I look at the world. I know intuitively what I like and do not like, even if I cannot explain it using some weighty analytical method. She still has trouble getting over the fact that when we walk up to the door of a house I have not been in before, I look down both sides and take a guess at where the kitchen, bathrooms, and bedrooms are. It is a little pop quiz I give myself to mentally rehearse my size-up skills. You should be able to figure out what the basic layout of a building is by giving it a quick look as you walk up. When my son was an infant, we would go to the park, I would put him in the swing, and as I pushed him, I would ask, "Liam, if that house was on fire, what ladder would you throw to the window there?" Then I would answer the question. Yes, I did get a lot of really strange looks from the moms there, but I kept my mind thinking about things that would help me do my job better.

We will not get to walk through every building in our district, but by spending time exercising that part of our mental toolbox, we will be better equipped to figure it out in the moment. What would you do if you suddenly fell through a floor? Are you trained to call a Mayday? It is the evolutionary step that takes us beyond our SCBA (self-contained breathing apparatus) emergency procedures and prepares us to respond in a situation that has a huge potential to be mentally overwhelming. A friend of mine, who was with the New York City Fire Department, talks about going shopping one day and walking through a grocery store with his captain. While walking down an aisle, the captain grabbed him and said, "The ceiling collapsed; how are you getting out?" The captain was making the point that you need to be vigilant in planning for what can go wrong.

Mental rehearsals give us a low-stress opportunity to work through various challenging situations we may have to confront. Thinking through what your actions will be if you find yourself in trouble will help reduce anxiety if you suddenly find yourself lost, disoriented, or trapped in a fire building. Mark Twain once said, “It takes me three weeks to prepare a good impromptu speech.” It makes sense if you think about it. You are not going to respond well the first time you see a problem. That is why we drill. It is why we need to practice applying the OODA loop in our training. You can build your experience bank by analyzing possible situations, performing mental rehearsals, and conducting challenging scenario-based training. This is the mental muscle memory I talked about earlier. Think of it like working out. When you are doing weight training, for example, you begin by learning the movement. Let’s say you are learning how to perform a low-bar back squat. You are coached, or watch a video, or read a book, and learn the proper position for the barbell to be on your back, the angle of your back to the ground, the angle of your hips relative to the ground, and the proper plane of movement of your knees. All of this is done to train the muscles, and the brain, to move the barbell through space in an effective way. You begin by using an unloaded barbell and perform repetitions until you have begun to program the necessary neurological cues—the patterns—that your body will use to identify if you are performing the movement properly. Then you add weight and make it more difficult. You must still move the barbell through space using the proper form, but is more difficult because of the added weight. If you have not developed the form first, however, you are likely to miss a cue and assume a position that compromises the load-bearing structure of your body, and you will at best fail in the attempt and at worst injure yourself.

In the same way, making decisions on the fireground becomes more difficult as we add variables to the scenario. Ideally, we would not place an apprentice fire service warrior in a position like the outside vent person in the earlier example. We have allowed the outside vent person to operate alone, outside of an IDLH atmosphere, to maximize the reach of the fireground team because the vent person has the required decision-making capacity to choose what to do if confronted with the choice of abandoning the SOG-driven assignment or continuing on. How smoothly would that same decision unfold for apprentice fire service warriors on their first, second, or even tenth, fire? You must master the form first in order to develop the maximum mental strength.

There is no single way to learn any skill in the fire service. Fireground tactical decision making is a complex process that is a synthesis of your experience, your training, your situational awareness, and your comfort level. The physical and psychological stresses of firefighting impact every one of us differently, and they need to be addressed separately. Ideally, being introduced to the Boyd loop and taking the time to think about how your organization teaches decision making will make you better prepared to confront the challenging environment of the fireground. By ensuring that your firefighters have well-planned SOGs, a solid foundation in the fundamentals of fireground tasks, and the opportunity to be challenged with real-world scenario-driven training, you will prepare them to make critical life-or-death fireground decisions.

Notes

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6

Making the Turn

When you are truly transformed into a warrior and have truly invested yourself in warriorhood, you want to be there [in combat]. You want to be able to make a difference.

—Lt. Col. David Grossman

In the Introduction I made the statement that firefighting is combat. I stand by that statement. In the preceding pages I have talked about the challenges we face in the fire service. We perform strenuous physical work in a threatening environment. Failure to meet those challenges can get us seriously hurt or killed. One dictionary definition of combat is "to fight or contend against; oppose vigorously."[1] By that definition and the parallels I have already drawn, I hope you can agree with me that firefighting is combat. So, if firefighting is combat, then aren't all firefighters "fire service warriors"? I do not believe so.

Check any number of dictionaries for the term *warrior* and you will find definitions like these:

- "A man engaged in or experienced in warfare."[2]
- "A person who fights in battles and is known for having courage and skill"[3].
- "A brave or experienced soldier or fighter."[4]

I tend to identify most with the second in that list.

Throughout history wars have been fought by peasants or conscripts, for the most part men, and sometimes women, who were forced to go and fight for, or over, someone else's land. Those people who have been compelled to fight by all rights should be called combatants, "a person or group that fights."[5] Without question, those people have risked injury and death, but they have not chosen that path freely. To me, the term warrior connotes the legendary 300 Spartans, the knights of the Middle Ages, Rogers' Rangers of the French and Indian War, and the elite members of the Special Operations Command today.

In my mind, warriors are dedicated professionals who selflessly volunteer to place themselves between their neighbors and a threat. That threat could come from a foreign nation, a terrorist cell, a criminal, or even the effects of unrestrained fire. There are warriors in the military, law enforcement, and the fire service. Having a warrior's mind-set, though, is not something that just happens. It is not issued to you with your uniform. *You* must make a *choice* to be a warrior. *You* must view your life, and your responsibilities, through the prism of the fire service warrior.

This book espouses a philosophy. It introduces a mindset. My goal is to offer a set of guideposts to which each of us who wear the title "firefighter" should aspire. For my purposes, a firefighter is someone who has a job working for the fire department. That title does not automatically confer a love for the job or a commitment to the mission of saving lives and protecting property that inspires them to be the best. We all have met people who are just in this job for the badge, the pension, the time off, or the chance to carry a pager and tell their neighbors war stories about how they were "doing it." The fire service warrior is a person who avows, "When this primal energy we call fire endangers you, your family, your home or community, call on me."

Fire service warriors place themselves in a position in which they must risk their life to protect their community. That calling is rooted in the same noble drive as our brother and sister warriors who defend our nation on foreign shores and patrol our streets at home. It is a selfless willingness to place one's neighbors ahead of oneself. The risk is the same. You are risking all that you and your family hold dear. You are risking your life to protect those who cannot protect themselves. Warriors have served a vital function in our society since the beginning of time. We traditionally think of warriors as members of our armed forces—Army, Navy, Air Force, and Marines—those who serve in the military and defend our culture and our way of life against our enemies. Throughout society's evolution, there have been warriors who have protected their homes and their compatriots from violence and aggression. It is also a warrior act to stand between the domestic threats that face our nation's citizens. No matter how you look at it, society needs its warriors.

The experience of the fire service warrior is different from the commonly understood warrior of the military or law enforcement communities. Both the soldier and the police officer have as opponents their fellow people, and, as such, they have a very personal context to their conflicts. The enemy of the fire service warrior is unrestrained fire. That enemy is personified by firefighters and by poets as being a thinking thing. We give fire the anthropomorphic qualities one might find in an Orwellian novel. To quote Robert De Niro's character in *Backdraft*,

> *It's a living thing, Brian. It breathes, it eats, and it hates. The only way to beat it is to think like it, to know that this flame will spread this way across the door and up across the ceiling, not because of the physics of flammable liquids, but because it wants to."*[6]

It is a catchy turn of a phrase to be sure, but there is not a fire service warrior who, when battling to quench a stubborn fire, has not felt as though he or she were fighting a living beast. Fire is not a thinking thing, and it does not have an intellect, but it does have a drive. It has potential. The very nature of the chemical chain reaction that allows fire to spring into existence also drives it to consume all it can. As long as physics and chemistry come together in a way that will cause organic material to decompose and release fuel into a properly balanced environment of oxygen and heat, the fire will continue. It will continue until we kill it or it consumes everything it can.

As a fire service warrior, you have a responsibility to yourself and to society. The relationship between warriors and the society they protect can be described in many ways, but the most appropriate I have heard is the way Lt. Col. Dave Grossman describes it. He refers to the relationship as one of sheepdogs to their sheep.[7] The warrior is the sheepdog, there to manage the herd and to protect the sheep from the wolves. For us, the wolves are the dangers that our neighbors, the sheep, face every day. It may be the danger that comes from not being able to treat a life-threatening illness or injury, the threat posed by a spilled toxic chemical, or the danger of a building that is being consumed by fire. Regardless of the nature of the threat, we must approach the situation with seriousness and focus.

To be a fire service warrior, we must approach each day with a focus. Whether we are cleaning tools, presenting a public education class, treating an asthma attack, or fighting a structure fire, we owe it to ourselves and to our neighbors—our "customers," if you prefer—to be 100% present in the moment. When we fail to be at our best and devote 100% of our focus to the mission at hand, we increase the risk to the neighbors we are there to help, we increase the risk to the brothers and sisters working alongside of us, and we increase the risk that we will be injured or killed. When you place your life in harm's way, you must be fully immersed in the intense and vital experience of the moment. Fire service warriors must embrace the emotional, psychological, and physical elements that they will confront at each and every fire. If you have not dedicated yourself to mastering your responses to these three elements, then you are increasing your chances of being hurt or killed. Why? You will not have adequately prepared yourself for the threats that you may face by ignoring or downplaying them. There can be hefty consequences for not being in the ready position.

Fire is an aggressive phenomenon, and must be met with aggression if it is to be tamed. Never before in history have firefighters had the tools to go head-to-head with our adversary the way we do today. In the 19th and early 20th centuries the objective of the fire service was to save the block. Our earliest name for a truck company was the "hook & ladder," derived from the hooks used to pull down buildings to create a fire break. These earliest firefighters, going all the way back to the vigils in Rome, fought to prevent the loss of an entire city by fire, and did so by attempting to confine the fire geographically. By the mid-20th century, we wanted to save the fire building. Our grandfathers in the fire service donned insulating rubber coats and pull-up boots, and they would begin to attack the fire from inside the building. Their goal was to try not to just keep the block from burning down but to save the involved property. With the advent of SCBA (self-contained breathing apparatus) and the adoption of bunker gear, our objective has become saving the actual room the fire is in and everyone in the building. We are able to advance into a threat envelope that was physically inaccessible to the firefighter of the 1970s.

I am not saying that our brothers and sisters in years past did not place themselves in harm's way; they most certainly did. Read Dennis Smith's book, *Report from Engine Company 82*, and you will get a sense of the punishment our previous generation took to fight fire, the injuries suffered, and the loss of their teammates in the line of duty.[8] It is possible that over time we will come to view those firefighters who did battle during the late 1960s and early 1970s as the fire service equivalent of the "Greatest Generation," as Tom Brokaw has dubbed the men and women who lived through the Great Depression and World War II.

Their experience was different from our modern warrior, though. First, the fuels they had to contend with did not burn as hot. The typical home from earliest history until the 1980s was filled with ordinary combustibles, that is, natural products that would average 8,000 Btu per pound of heat production. Modern household furnishings are essentially solidified gasoline, and they burn with a heat release and ferocity that you would expect of a pile of tires on fire. Every room in the modern home has plastic and synthetic materials in it—TVs, couch cushions, laminate flooring—and they burn at double the Btu output of grandma's couch that was made of wood and covered in cotton and wool. Second, our forefathers were limited to how far they could be from a breath of fresh air. When I teach hazardous materials response, I always remind students that the first route of exposure to worry about is inhalation. You have to be able to breathe! Today's fire service warrior is given the tools and technology to crawl down the mouth of the dragon and extinguish the fire in its belly. The protective ensembles we have are absolutely awesome. We are protected better than any firefighter in history has been from being burned or suffering smoke inhalation. With the advances in bunker gear, SCBA, hoods, and gloves, we are able to enter atmospheres that are 100% untenable; we are in environments that would kill us instantly if we were not protected. With this knowledge we must ensure that we are using the technology of protective clothing in a way that advances our mission but does not *recklessly* endanger our people. If, as a community, we are going to place our brothers and sisters into one of the most untenable places in the world, then we owe it to them and to their families to fully prepare them for the threats they will face. We must train our apprentice fire service warriors to go to battle mentally, physically, and emotionally prepared to thrive in the hostile microcosm that is a structure fire.

Essentially, this all comes down to choosing a warrior's life. You can be forced to be a combatant, but you cannot be forced to be a warrior. Brigadier General S.L.A. Marshall was an army historian for both the Pacific and European Theatres during World War II. In recording interviews with thousands of soldiers, he reported that only 15% to 20% of combatants would use their weapons to engage the enemy.[9] They were forced to be in combat by virtue of the draft, or they chose to be there out of a sense of patriotism, but when the time came to participate in the very act of combat, only 2 out of 10 were willing to fight back and try to kill the enemy.

Every one of us who has joined the fire service is a volunteer; we chose to accept this job. We have not all accepted the responsibility to place ourselves in harm's way to protect our neighbors, though. That is the calling of a warrior! It is willingly accepting risk to self to protect others. Most of us have some concept of what it means to be a warrior, gleaned from movies, books, television (and increasingly from video games), but we have to remember that those examples are written to entertain, not to enlighten. To better understand what the culture of the warrior is and the role of the fire service warrior, we must first look to the examples of true warriors, past and present, to understand what it really means to be a warrior.

The Warrior Class

Throughout history, from Europe to Asia to India, there has existed a warrior class. These were the professional soldiers of their day. While it is true that in times of war, the entire tribe or nation would be mobilized to fight for their king or emperor, the warrior class was revered. The warrior class was both loved and feared because of the capacity to live a life of hardship and privation and meet the enemy on the battlefield without reservation. Professional soldiers have always been viewed in a different light than their conscripted counterparts. Today's modern all-volunteer military is viewed in a different light than the conscripted forces that fought in Vietnam. Most of America has embraced its warriors. I have stood in the airport in Anchorage, Alaska, and been nearly moved to tears when a US Air Force master sergeant greeted his family at the gate and the entire concourse burst into applause. Society recognizes that there is something special about people who raise their hands and say, "Pick me!"

There are many examples of a warrior class that we can examine to gain an understanding of the characteristics of such a selfless calling. We have heroic tales like that of the 300 Spartans who stood against the invading Persian hordes to defend the democratic ideals of Greece.

The Roman centurion was the professional soldier of the Roman Republic and later the Roman Empire. Centurions were the leaders of the Roman armies and commanded the ordinary legionnaires, who often were conscripted soldiers. While centurions could be appointed or promoted from within the ranks, their role was to lead in battle and to maintain the military order of the legion. According to Vegetius, in *De Re Militari*, The centurion

> *. . . is to be vigilant, temperate, active and readier to execute the orders he receives than to talk; Strict in exercising and keeping up proper discipline among his soldiers, in obliging them to appear clean and well-dressed and to have their arms constantly rubbed and bright.*[10]

For many in the Western world, the most familiar example of a warrior class is that of the medieval knight. The origin of the knighted class began under the rule of Charlemagne in the late eighth and early ninth centuries, when the elite of the military were placed on horseback, not to fight as pure cavalry but to lead conscripted infantry into battle. The concept of the knighthood evolved over time from being purely a mounted elite warrior to being a member of the nobility in England and in France by the middle ages. Knights often ascribed to the code of chivalry, which was introduced in chapter 1, as a guide for proper behavior.

From the East we can draw on the example of the samurai, the warrior class of Japan. By the 14th century, these warriors were developing a culture and a code of conduct that governed their actions.

Professional warriors from history serve as good examples for the virtues and values all warriors hold true: loyalty, courage, honor, and other high values. They were a class of people in the sense that their status in society was defined by their military role. In many cases there was no other calling for these men; they were warriors until they earned their pension and hung up their shield or perished in combat. The study of warrior culture throughout the ages is beyond the scope of my work here, but to facilitate an understanding of how important a warrior culture can be, I examine in a bit more detail two tribes of warriors: the Spartans and the samurai. These warriors embraced the ideal of the warrior as more than just a brutal, barbaric soldier. They realized that they needed to be masters of their actions, their emotions, and the manner in which they used violence to protect society.

Looking to the East

The samurai were the warrior class of Japan. Their ideal was to be masters of the pen and the sword, to be literate, cultured people who were also well-versed in the arts of war. To accomplish this task, they identified nine virtues: honor, loyalty, courage, respect, honesty, wisdom, filial piety, rectitude, and benevolence. It was in striving to live a life filled with these virtues that the samurai were able to best be effective warriors. An outgrowth of the developing samurai culture was the development of the *Bushidō* code. *Bushidō* means "the way of the warrior," and it encompasses the ideals of the literate warrior espoused by the samurai and the codes of conduct of the Japanese warrior, much like the ideals of chivalry that we understand from Europe.

One famous work that sums up much of the ideal of the *Bushidō* code is the *Hagakure*. The *Hagakure* contains the thoughts of the samurai Tsunetomo Yamamoto, which were recorded (in much the same way as the works of Epictetus) by one of his followers, Tsuramoto Tashiro.[11] In the *Hagakure*, Yamamoto explains how it is that a warrior must embrace both courage and compassion:

> *A samurai cannot fulfill his duty unless he has enough compassion within to break his stomach; at the same time, he must appear courageous without. Consequently, a monk learns courage from a samurai and a samurai imbibes compassion from the monk."*[12]

The most famous among their number was Miyamoto Mushashi, who authored one of the best-known volumes on the samurai approach to martial arts and combat, *The Book of the Five Rings*. In this book, written in the last year of his life, he wrote the following:

> *Who in this world can obtain my correct Way of the Martial Arts? Whoever would get to the heart of it, let him do so with conviction, practicing in the morning and training in the evening. After he has polished his techniques and gained independent freedom of movement, he will naturally gain miraculous powers, and his free and easy strength will be wonderful. This is the spirit wherein, as a warrior, he will put these practices into action.*

Everything in the samurai lifestyle was about choice and self-control. There is a story told that a young samurai went looking for the man who had assassinated his master. It took the young samurai years to find this man. When he finally did corner the assassin and drew his sword, the cornered man spit into the face of the samurai. The samurai paused, sheathed his sword, and walked away. He did so because if he had killed the assassin, it would have been out of his own personal anger, rather than out of a sense of duty. The story itself may or may not be true, but it is a parable nonetheless that offers some insight into the mind-set of the samurai warrior and the level of self-control that they required of themselves.

Go tell the Spartans

The birth of modern Western culture occurred in ancient Greece. The philosophers Socrates and Plato, whose work laid the foundation for the Stoic teaching we discussed in chapter 3, were two of the great thinkers of the age. Herodotus was a Greek scholar who created the study of history as we know it today. Democracy—government as the will of the people—was born and nurtured in Athens. The idealized warrior ethos, with its emphasis on courage, self-control, and selflessness, has its roots in Sparta. The Greece of the ancient world was far different from the modern nation. From the 11th-century BCE, Greece developed as several city-states, which were essentially many little nations, each with a center of power and influence and a motivating principle. Chief among the Greek city-states were Athens and Sparta. From the eighth to the fourth centuries BCE these two powers were locked in a struggle to control and define Greece. Athens was the seat of democracy and the arts that prided itself on the achievement of the individual. In contrast, Sparta had what could be argued the most extreme warrior culture of all time.

Sparta developed as a city-state in the south of Greece, with its origins dating back to roughly 1000 BCE.[13] Sparta's primary purpose, according to historian Paul Cartledge, was "the use of war for self-preservation and domination of others."[14] To this end, the Spartans developed a very rigid hierarchy and a national system of education that prepared young men to be warriors in the Spartan Hoplite Army. This schooling was known as the *Agoge* (which translates to "the upbringing"), which "turned boys into fighting men whose reputation for discipline, courage and skill was unsurpassed."[15] Around the age of seven, boys would leave home and enter the *Agoge*, where they were instructed in the arts of combat, made to exercise, and taught to suffer pain without flinching or crying. They were taught to be mentally and physically strong, to be able to survive the harsh reality of combat. The history that has been documented paints a picture of a brutal initiation into a warrior tribe. One either thrived under the adversity that would come with combat or did not survive. The boys spent 11 years undergoing a rigorous military education to make them warriors for the state.

Some would argue that this type of treatment of a boy as young as seven years old is abusive, and in the context of our society today, it certainly is, but what is remarkable was that this lifestyle was a chosen one. True, the individual child had no choice in his upbringing as a warrior, but the society as a whole chose that they wanted only the strongest warriors among them. As an example, at birth, infants would be taken from their parents by the elders and examined. A child found to be maimed, deformed, or lacking the physical constitution to fulfill its responsibility to the state would be left on the side of a mountain to perish from exposure. This was done to all children, male and female, because, to the Spartans, the purpose of the individual was to improve the strength of the whole. That is a statement of the values of the Spartans. Unlike their cousins in Athens, the individual meant nothing; it was only in the ability to help the collective that a person had value. This is proven clearly in that the only Spartan tombstones that could bear a person's name were those for men who had died in combat and those for women who had died in childbirth.[16]

At the age of 18, the boys would graduate from the *Agoge* and begin a selection process to determine who had the greatest skill level to rise to leadership positions or become members of the most elite Spartan ranks.[17] Based on the reputation they had developed as students, and during the selection process, Spartan men would be elected into one of the military messes. As Cartledge points out in *The Spartans*, "election was competitive: a single 'no' vote was enough to get a candidate rejected." He goes on to say, "Failure to secure election to any mess at all was tantamount to exclusion from the Spartan citizen body, and perhaps, also army."[18] Even in the rigidly hierarchical world of the Spartans, election by one's peers based on demonstrated ability to be a warrior secured rank, privilege, and even citizenship. You had to commit to the mission, the virtues, the values, and the team, or you were rejected.

The Spartans have found almost mythic reverence in the eyes of warrior culture because of the famous battle at Thermopylae. The myth of 300 Spartan warriors holding back millions of Persians found renewed interest with the release in 2007 of the movie 300.[19] A deeper examination of the legend of the 300 reveals that in total the force arrayed against the Persians was around 7,000 men, with the remaining troops being drawn from other Grecian city-states. Facts show the Spartan strategy and tactics helped them lead their fellow Greeks in holding back the onslaught of roughly 300,000 Persians.[20]

In the year 480 BCE the mighty Persian army arrived in Greece intending to burn Athens and enslave the Greeks as punishment for supporting an uprising during the Ionian revolt 20 years earlier. The estimated number of Persian soldiers was recorded to be as high as 2 million. However, modern estimates indicate that a force of roughly 300,000 marched around the Adriatic Sea to invade. The Spartans were called upon to lead the defense of Greece on land, while an Athenian general led a coordinated naval action to keep the Persian Navy from effectively supporting their ground forces. The Greek land forces numbered about 7,000 soldiers; leading them was one of the two Spartan kings, Leonidas, and a hand-picked army of 300 Spartan warriors. They confronted the Persians at Thermopylae, a narrow mountain pass that allowed the Greeks to use terrain to their advantage by forcing the Persians into a narrow front, preventing them from bringing the mass of their army to bear.

For three days the Greeks held the pass at Thermopylae under withering arrow fire and pulse after pulse of Persian infantry. On the night of the second day, Leonidas received word from his scouts that the Persians had found a little-known pass and were using it to get behind the Greek forces. The blocking force that Leonidas had placed to stop this very possibility had abandoned their post in fear. Rather than flee the pass, Leonidas directed a tactical withdrawal of all the Greek forces except his 300 Spartans and a group of 1,000 Thespians who volunteered to defend the pass. This withdrawal was a suicidal action, and Leonidas and the warriors who stood beside him knew that they would be killed. They stayed to ensure that the remaining force would be able to take up additional defensive positions and warn the Greek cities. They fought with a resolute acceptance of death because they felt their lives served a greater purpose. As his troops readied themselves for the battle and ate their breakfast, Leonidas is commonly believed to have said, "Tonight we dine in Hades."[21] This selfless action is now thought by historians to have paved the way for the eventual defeat of the Persian Empire and establishment of the ideal of democracy and Western culture.

Modern warriors

While a culture of the sort found in either samurai Japan or in Sparta is unfamiliar in our modern day, it is not altogether unknown. Consider the initiation experiences that members of our military Special Operations community undergo. The would-be Navy SEAL (Sea, Air, and Land specialist) will spend 32 weeks in Basic Underwater Demolition/SEAL training being "abused" and expected to thrive under adversity that causes 80% of recruits to quit, just for the privilege of being given a chance to earn the SEAL qualification. Passing the initiation simply paves the way to a minimum of another six months of grueling training to earn the title of Navy SEAL. Only then is this apprentice warrior considered educated enough to start 18 months of predeployment training with a SEAL platoon. This means that from the day of enlistment, a new enlistee will have been trained and mentored, tested and evaluated, and forced to display an unwavering commitment to the mission for nearly three years before being deployed for the first time.

That commitment has been most clearly shown recently in the actions of two Navy SEALs, one an officer and one an enlisted man, who both willingly and selflessly sacrificed themselves for their teammates. On June 28, 2005, Lt. Michael Murphy was the leader of a four-man SEAL special reconnaissance element in the mountains of Afghanistan. His team was compromised, and they found themselves in a prolonged firefight against more than 50 Taliban fighters. This battle, which turned out to be the most costly in naval special warfare history since World War II, has been captured in vivid and memorable detail by Marcus Luttrell in his book *Lone Survivor*.[22] Luttrell speaks not only of the commitment that his friend, teammate, and leader Michael Murphy showed, but the selfless and courageous action of the other members of the team: Matt Axelson and Danny Dietz. For more than two hours, and with every member of the four-man team having been shot multiple times, they fought in a coordinated action to try to protect one another and evade the enemy. Eventually, only Luttrell would survive. Sixteen more members of the Special Operations community, eight SEALs and eight members of the US Army 160th Special Operations Aviation Regiment, would be killed during a rescue attempt when their helicopter was shot down. The US Navy, in a summary of the action, provides an unvarnished look at the commitment Lt. Murphy displayed:

> *Despite the intensity of the firefight and suffering grave gunshot wounds himself, Murphy is credited with risking his own life to save the lives of his teammates. Murphy, intent on making contact with headquarters, but realizing this would be impossible in the extreme terrain where they were fighting, unhesitatingly and with complete disregard for his own life moved into the open, where he could gain a better position to transmit a call to get help for his men. Moving away from the protective mountain rocks, he knowingly exposed*

> *himself to increased enemy gunfire. This deliberate and heroic act deprived him of cover and made him a target for the enemy. While continuing to be fired upon, Murphy made contact with the SOF Quick Reaction Force at Bagram Air Base and requested assistance. He calmly provided his unit's location and the size of the enemy force while requesting immediate support for his team. At one point, he was shot in the back, causing him to drop the transmitter. Murphy picked it back up, completed the call and continued firing at the enemy who was closing in. Severely wounded, Lt. Murphy returned to his cover position with his men and continued the battle.*[23]

Lt. Murphy received the Medal of Honor for his actions. Petty Officers Axelson, Dietz, and Luttrell were all awarded the Navy Cross, the Navy's second highest award for valor.

On a different battlefield, an enlisted SEAL, Petty Officer Michael Monsoor, also showed the selfless dedication that a true warrior lives as a personal code. On September 29, 2006, during the Battle of Ramadi in Iraq, Monsoor's SEAL platoon was responsible for providing sniper cover and automatic weapons overwatch for the troops engaged in heavy house-to-house fighting. Ramadi was a pitched battle, and the city was filled with foreign enemy combatants—it was like the Wild West. During the action, the position that Monsoor occupied along with two other SEALs was compromised, and they came under attack. The official summary of action says the following:

> *Due to expected enemy action, the officer in charge repositioned him (Monsoor) with his automatic heavy machine gun in the direction of the enemy's most likely avenue of approach. He placed him in a small, confined sniper hide-sight between two SEAL snipers on an outcropping of the roof, which allowed the three SEALs maximum coverage of the area. He was located closest to the egress route out of the sniper hide-sight [sic] watching for enemy activity through a tactical periscope over the parapet wall. While vigilantly watching for enemy activity, an enemy fighter hurled a hand grenade onto the roof from an unseen location. The grenade hit him in the chest and bounced onto the deck. He immediately leapt to his feet and yelled "grenade" to alert his teammates of impending danger, but they could not evacuate the sniper hide-sight [sic] in time to escape harm. Without hesitation and showing no regard for his own life, he threw himself onto the grenade, smothering it to protect his teammates who*

> *were lying in close proximity. The grenade detonated as he came down on top of it, mortally wounding him.*[24]

Petty Officer Michael Monsoor received the Medal of Honor for his actions.

These examples of warriors ancient and modern serve as examples for each of us as we strive to find what the *fire service warrior* means for each of us. I believe in the importance of committing to the virtues of honor, courage, and duty. I believe in the importance of committing to our mission of saving lives and protecting property; without a commitment to our mission, we will be terrified at the thought of dying. Fire service warriors must strive to live, train to do everything possible to survive the circumstance they will face, but at the end of the day they must look themselves in the eye and know that they will place their lives on the line to do what they have been called upon to do. That is why even when we grieve for a fallen brother or sister warrior, we can also celebrate the willful choice to embrace selflessness. If I have committed myself to the value of selflessness, and in the course of fulfilling my duty I should perish, my tribe should be able to hold their heads high with the knowledge that my death was for a noble cause.

Firefighters will die despite our best intentions, equipment, and training. As long as we are going to fight fires, we will expose our brothers and sisters to hostile conditions that can kill us. Heat stress, sleep deprivation, dehydration, collapse, suffocation, trauma, and burns are all risks we must accept as facts. If one of us should fall standing between our neighbor and the risk of fire, it is a noble death. We should raise a glass and toast the selflessness and heroism of the act.

What we must no longer tolerate are those people who are unwilling to commit themselves to our mission. Are you committed to placing yourself in harm's way to protect the helpless? You need to be honest with yourself, because if you are not committed to that mission, then you will not be able to make the turn.

Making the Turn

When you are assigned the nozzle, you become the linchpin of the entire fireground operation. Literally every other member of the team is on the fireground to make sure you can do your job. All you truckies take a deep breath for a minute—the value of the supporting cast members should not be ignored or downplayed; the line will not move forward efficiently without a courageous and capable crew backing up the nozzle, great truck work, and focused incident command. However, even if all those supporting players are doing a great job, the building will burn to the ground if the nozzle operator is not prepared to "make the turn."

Making the turn is what you do when you dig in and push past the heat, steam, and fear to turn the corner and get water on the seat of the fire. When you are advancing down a hallway, there is always a moment of decision. You will reach a point a few feet from the fire room where the heat is intense; it is banking down and driving you into the ground. You want to do nothing more than retreat. You literally have to push forward, past the heat and the fear, get through the doorway, and get water on the fire. Nozzle operators do this because they know that the bad stuff will go away once they commit themselves and make the turn.

Not everyone is ready to make the turn. You see people assigned to the nozzle that are not ready for the punishment that comes from making the turn. They are not ready to push down the hallway to the back bedroom that has already flashed, through a chimney of fire, and make the turn to put the fire out. There are a whole host of reasons why people are not ready. Maybe they became employees of the fire department because of the financial rewards or the social esteem, but not because they really wanted to fight fires. Maybe they joined with every intention of wanting to help people, but found that the physical challenges were too much to overcome. Maybe no one has shown them the right way, or given them a system of virtues and values that make the pain and hardship of pushing down that hallway worth it.

What happens when someone will not make the turn? Property is destroyed that could have been saved, and sometimes victims die who could have been saved. Just putting water on the visible flame may not be enough. The seat of the fire is where the beast lives, and if you do not kill the beast, it will destroy everything, including you. You will have to commit to making the turn, or you will place yourself in even greater danger. Having someone on the nozzle who is afraid or incapable of making the turn is not going to do any good.

In the same sense, we should want each and every member of our department to make the turn and embrace the idea of being a fire service warrior. Our fire service warriors are the men and women who make a difference. These are the kind of people we want in our departments! Do you want someone who is there for social prestige, to carry a badge, or because of the benefits? I don't. I want to surround myself with brothers and sisters who will selflessly rush to danger out of a sense of purpose and dedication. I have had the honor of working with current and former members of elite military units, and the comradeship they share is amazing; a brotherhood that is founded on a mutual respect that comes from knowing that the other teammates have shown a personal commitment to do what is required to help the whole team succeed. I have no desire to quibble over vacation time, who is getting the overtime, or who has managed to stay around the longest without quitting. I have no desire to surround myself with people who see the firehouse as a frat house. I love my job, I have a ton of fun doing it, and I appreciate the pay and benefits I earn, but at the end of the day, this job is about our mission—saving lives and protecting property.

I'm asking each person who has picked this book up to make the turn, to accept your responsibility to live as a fire service warrior, and to strive for the ready position. Some of the topics I introduced are complex, like the physiology of the body under anxiety and in response to heat stress. Some of the ideas may be frightening, the kind of things that keep you up at night. I hope that many of the ideas have been food for thought. You have to make the choice to embrace the ideas laid out here and test the theories yourself, just as you would test tactics or strategies found in any other text. For the fire service warrior, making the turn is the final step in achieving the ready position.

Why is it so important to make the choice, the commitment to the idea of being a fire service warrior? Without making a commitment to be your best, to being in the ready position, you run the risk of not having a sense of purpose. That lack of a defined mission and responsibility will lead to uncertainty. One of the single greatest impediments to success for many people is uncertainty.

Uncertainty

The human mind is distracted by the unknown. The reason we have climbed mountains, spread out across the continents, and ventured into space is to conquer the unknown. Ancient peoples created the myths of deities that caused the crops to grow, explained winter's desolation, and gave meaning to the violence of nature. That lightning strike that burned down the forest must have been because Zeus was angry. We fight a battle daily with our minds to know our place in the world around us. Uncertainty is the feeling that develops when we cannot answer the question, "Am I safe?" When we simply do not know the answer to a question, we are inquisitive and may investigate. That inquisitive nature is why we have developed tools, technology, and the host of inventions that have increased our comfort as humans. Being inquisitive, however, does not cause panic; it does not make one question if the next minute will be your last. Isaac Newton did not worry that he was about to be crushed to death when he wondered why the apple fell from the tree. The lack of worry allowed him to investigate and develop the early principles of physics that explain how objects behave here on earth.

However, when we feel threatened, a feeling of uncertainty grips us, and it becomes vitally important that we find an explanation that allows us to feel safe. I believe it is uncertainty that is the trigger for our SNS (sympathetic nervous system) reactions. Say you are walking through a parking lot late at night, returning to your car from shopping. Are you apprehensive? Be honest with yourself! Why are you apprehensive? You become apprehensive because you are uncertain about either the safety of the parking lot or your ability to manage a threatening situation if it occurs. That apprehension brought on by uncertainty is one trigger for the escalation of the SNS primacy. Would you have the same concern in the middle of the day? No. Why? As I pointed out in chapter 2, we are visual creatures. When you can see, you are less fearful because your eyes are operating better. You do not have the same uncertainty as when your vision is impaired by the darkness. That is why we are all afraid of things that go bump in the night.

In battle, uncertainty has been recognized as having an impact on the ability of warriors and commanders to respond to conditions. The US Marine Corps publication *Warfighting* states, "Uncertainty pervades battle in the form of unknowns about the enemy, about the environment, and even about the friendly situation." It goes on to make this point clear: “The very nature of war makes certainty impossible; all actions in war will be based on incomplete, inaccurate, or even contradictory information.”[25] It should be obvious that uncertainty affects the fireground in the same way. We do not have perfect knowledge of the building construction, the conditions inside the structure, or the way the fire is compromising the building. We rarely have a complete picture of where victims may be inside and the exact position of our crews. Situational awareness (discussed earlier in the book) is based on a fluid understanding of probabilities: how is the building probably constructed? Where is the seat of the fire probably located? Is our mode of operations probably going to be successful in extinguishing the fire before it extends or overwhelms us? In the *Art of War*, Clausewitz talks of “the fog of war” and its impact on the ability of armies to be successful on the field of battle. The commander who can minimize the fog of war, minimize uncertainty, and maximize the individual soldier’s sense of duty and mission will ultimately be successful on the field of battle. For the fireground commander, company officer, or fire service warrior, it is no different.

You can reduce the effect that uncertainty has by accepting it and preparing for it. That is what *making the turn* is really about. It is about accepting the uncertainty of the fireground as well as the known challenges that our chosen vocation has. It is about committing to a set of virtues and values that places your responsibility to your neighbors, your community, and your brother and sister warriors above your personal needs. If your firefighters are overwhelmed by uncertainty, by fear, because they do not have a sense of their mission or the training and ability to confront the hellish nightmare that is found inside that burning building, then they will either fail to aggressively extinguish the fire or they will be overwhelmed by the conditions and may lose their lives. If we want to see a reduction in line-of-duty deaths (LODDs), we need to prepare our firefighters to be fire service warriors! How do you do that, though? What is the ready position, and how do we achieve it?

The ready position

The *ready position* is a condition where the capacity and capabilities of the fire service warrior are in an ideal state of potential energy. Whether you are sitting in the firehouse at the kitchen table with a cup of coffee at hand while reading this or in the recliner at home with the pager sitting on the table next to you, ideally you are ready to spring into action if the alarm comes in. If you are in the ready position, you have mastered the physical and mental skills of the fire service warrior; you are able to be 100% present when called to battle; you have the knowledge, skills, and abilities to thrive on the fireground; and you have prepared for the unfortunate in case your next alarm is your last one.

The phrase *ready position* comes from training recruits in the art of preparing their SCBA, gloves, and helmet to be donned using an over-the-head method, from the ground, while wearing full turn-out gear. In many fire academies and "smoke diver"–type classes, this is a timed event. The ready position is a place where you as the student wait with your hands on the frame and cylinder valve poised to move at the moment the instructor shouts "go!" The objective is to don the air pack in a supremely efficient manner. If there are no wasted movements, and you have a well-develop skill set, just about anyone can hear the instructor shout "go" and be on air, with helmet and gloves in place in 30 seconds. I have witnessed people do it in 20 seconds, and I know one former coworker who did it in 16. Those are examples of knowing exactly what you need to do and doing it without allowing distractions to impact your performance. There is a significant amount of muscle memory that you have to develop in order to don an air pack, gloves, and helmet in 30 seconds. You have to have developed a neurological pattern through perfect practice.

At the same time, I have had students who felt that, because they met the minimum standard of 45 seconds one time, they were successful. I think all of us have met people who considered themselves prepared because they managed to meet a minimum standard. Boy, are those people wrong! There is an expression I am reminded of: "Amateurs train until they get it right; professionals train until they can't get it wrong." The point of all the practice, preparation, mental rehearsal, and study that I have been talking about is to prepare until you almost are incapable of making a mistake. There are far too many things that can go wrong on the fireground, even if you do everything right. There is too much room for you to end up injured or killed because of the problems you cannot foresee, so prepare as if your life depends on it!

The whole idea really comes down to being prepared for the fact that life, and this business, will throw you challenges that are unknown until they are right in front of you. You must commit yourself to being prepared to meet these unknowable challenges by mastering your physical and mental capacities. "Be prepared" is the motto of the Boy Scouts, and it is a practice that firefighters the world over should espouse. As a fire service warrior, being prepared means placing yourself into the ready position, that is, being prepared for the physical and psychological stresses that you will face each and every day. In the preceding chapters, I have laid out the facts of what those challenges are as we understand them today. The reality is that each of us is unique; what I am challenged by will be different from what challenges my brother or sister warrior, and in turn different from what challenges you. We must prepare for the unknown with an intensity that surpasses our preparations for the expected. It is the unknown, high-risk, low-frequency occurrence that is more likely to injure or kill us.

The ready position is an idealized state of personal condition. *Personal condition* is a term that is used in a variety of ways in the psychology and sociology communities to represent what a person brings to the table. For my purposes, personal condition is defined as a firefighter's ability to respond to the psychological and physiological stresses of firefighting as governed by training, experience, and belief systems. Regardless of how prepared we are on any given day, or given response, we all have a personal condition. For the fire service warrior, the ready position is the state of readiness where a firefighter is at the peak ability to emotionally, cognitively and physically perform offensive operations on the fireground.

When you are in the ready position, you are prepared for the known general conditions that are present at every emergency response and for the unknowable specifics that you must process on your arrival. The ready position is an ideal condition. Along the way, we hit milestones in our readiness (fig. 6–1).

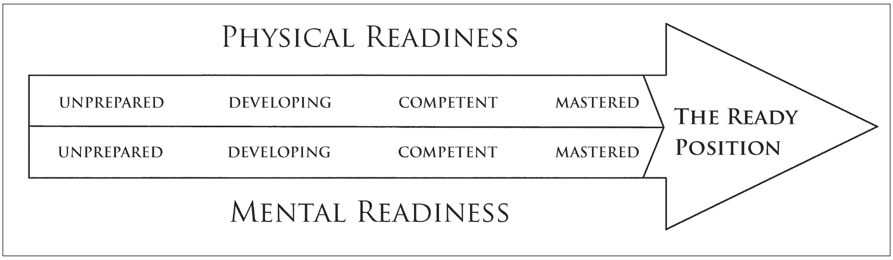

Fig. 6–1. The milestones of the ready position

At the far end of the spectrum, we are unprepared. As we learn the skills of physical and mental readiness, we progress through stages of developing and competency, and finally we will have mastered the skills we need to be ready. Each one of us falls somewhere along this continuum on any given day. Our goal must be to strive for the ready position every day and on every call.

How do we get there? First and foremost, we have to commit; we have to *make the turn*.

Rituals and Routines

Do you have rituals that you follow every day at the firehouse or when you are getting on the rig for a call? Or do you have routines? Some people use these words interchangeably. They are not synonymous, however, for one is about approaching a task with reverence, and the other about checking a box on a form. A ritual is "an established or prescribed procedure for a religious or other rite."[26] A routine is "regular, unvarying, habitual, unimaginative, or rote procedure."[27] There is a very different state of mind involved when you approach a task as ritual than when you approach it as routine. Are you like the professional pitcher who always puts the left sock on first? Do you always perform your rig check in the same order? Do you report the same pieces of information for every size-up? The human mind likes order; we like sequences and patterns. This is why pattern matching is a critical component of recognition-primed decision making. It is also why many people are challenged by a rapidly changing situation that does not match up to their expected outcomes. Most people do things the same way every time out of routine. For the fire service warrior, routine, mundane acts take on the form of ritual and, in doing so, become part of being in the ready position.

From the beginning of time, humankind has recognized the importance of ritual in our existence. Whether you are thinking of ancient people making animal sacrifices to appease the gods to ensure a good hunt, or the transubstantiation of the host into the Body of Christ in the Roman Catholic Church, ritual has served to connect humankind with the unprovable truths that allow each of us to find a place of comfort in a world of uncertainties. Ritual serves to force us to slow down and contemplate the thoughts, actions, and meanings behind what we are doing. When we act in a routine way, we may simply be going through the motions, and we are often thinking about something other than the importance of the task at hand. When we ritualize an action, we trigger our conscious mind to focus on what we are doing, and we alert our subconscious mind that something special is going on. Consider for a moment driving. If you drive the same route to work every day, it is easy for the trip to become routine; you know where you get on the highway; you know where you change lanes; you know where you get off the highway. When you find this becoming routine, you start to think about other things and quit really paying attention to driving. Conversely, if you make a ritual of your drive into work, it becomes an opportunity to prepare yourself mentally for the challenges ahead.

A fire service warrior must approach life-threatening situations that would cause fear in any normal person with a focused calm. In religious ceremonies, a key concept is to induce an alerted state of consciousness, that is, a mind-set in which the ordinary, day-to-day thoughts are set aside and people allow their spiritual and existential self to emerge. Anyone who has been moved by a religious ceremony, the performance of a symphony, or the sight of dawn breaking over the mountains has experienced that kind of altered state of consciousness. Firefighting should be an altered state of consciousness. Preparing for your shift should be done with the same attention to detail a minister gives in preparing to preach. The alert of the station alarm or the pager on your belt should mentally trigger your understanding that something outside of your normal existence is about to occur, like the swelling of an orchestra during Beethoven's Ninth Symphony. If you ever find yourself having to call a Mayday, it should be with the same sense of calm heard in the voice of Sully as he guided his aircraft into the Hudson.

The morning ritual

The fire service is incredibly diverse in the way we go about having personnel ready to respond to our neighbors' calls for help. In the United States, a majority of our firefighters are members of volunteer organizations where the norm is to respond from home, where a pager goes off or the town siren wails. In the major urban areas and many suburban areas, fire stations are staffed for some period of the day. It does not matter if you work a shift or are on-call—you need to be prepared when the call comes in to shut out everything that is not relevant to the mission at hand. I work a 24-hour shift; my day at the firehouse begins at 0700 and offers me a clear-cut time and place where I need to focus on my job. When I get up in the morning, I have my rituals for getting ready, saying good-bye to my family, and heading out to work. I do not leave until I have fulfilled the ritual, because it is one of the elements of ensuring I am in the ready position. Once I get in my truck and back out of the driveway, my focus turns to the day ahead.

In chapter 4, I talked about size-up and how it should start on your way to the firehouse. I pay attention to what the weather is when I leave and listen to the news on the way in to get a sense of what the day may hold. I review what the normal assigned daily and weekly jobs are and what my responsibilities for the day will be. When I get to the border of the municipality I work for, I flip the "on" switch, so to speak, and begin to look at my still district. I tend to drive around a bit on my way to the firehouse to see if there are traffic problems that have cropped up because of road construction, and I take the time to drive down blocks that I do not often respond to. I could do this on duty, but I think it is easier sometimes to do it when I do not have to be listening to the radio and navigating an engine through narrow streets.

Once I arrive at the firehouse, I say hello to the crew that worked the day before, put on my uniform, and then head to the apparatus floor to put my gear on the rig. I put my gear on the rig the same way every single time. My boots sit on the floor, and my coat is hung on the side of the rig with my radio strap and hood ready to go. I check my SCBA the same way every morning: turn the pack on and make sure the PASS (personal alert safety system), bypass, and low-air alarms operate; turn the pack off and wait for the PASS prealert to activate; shake the pack to ensure the PASS motion sensor will reset; breathe the bottle down to make sure the remote gauge, heads-up display, and low-air alarms are operating properly; manually activate the PASS; and silently in my head go through the process of declaring a Mayday and giving a LUNAR (location, unit, name, assignment, and resources needed) report. Once I am sure that my SCBA is ready, I check the flashlight on my coat, the backup flashlight in my pants pocket, and the larger box light that hangs on my belt. I have heard people say that I am crazy for having three flashlights on me, but I have found myself without a working light before, and I refuse to trust batteries or technology. Be prepared! I check my portable radio to make sure the battery is freshly charged and that it is on the proper frequency. I place my personal Halligan bar and roof hook on the rig. I double check to make sure that the axe I will grab, if needed, is ready to go.

My entire first 15 minutes are dedicated to making sure that I am ready for the day. My current rank is engineer, and as a result, my primary job function is to drive and pump, but I have to be ready to function inside the fire building at any moment. This is why my first concern is making sure that my life-safety equipment is ready for action. I have seen people who do not even take the time to check their SCBA at the start of their shift. My thought is always the same, "Would you jump out of an airplane without checking the parachute?" It may sound harsh, but if you do not take a few minutes to make sure your breathing apparatus is ready, you are irresponsible and as far away from being a professional as there is. I should not have to repeat this, but firefighting is a dangerous job! You are placing your life on the line. Your actions when it comes to being prepared show just how much you value your life. How would you explain to your family if you ended up injured because you were too complacent to check out your SCBA? If you are an officer, how would you explain to your firefighter's kids that their parent died because you did not insist that everyone make sure that their portable radio and flashlight were fully functional?

The dispatch ritual

In religious rituals, the sound of the organ music, the lighting of candles, and the invocations of the celebrant are subconscious triggers that tell your brain that something special is going on. Those triggers are imbued with sacred meanings that are supposed to cause your mind to focus and set aside unimportant thoughts. That initial dispatch should be the same thing. That should be the trigger that shuts off your thoughts about the fight you had with your spouse, about how your kid is doing in school, and even worrying about your parent who is dying in a hospital bed. You can come back to those thoughts later. They are important, but they are completely irrelevant right now. Why? We have a sacred duty to protect society. You must be 100% in the moment to fulfill that duty. The initial dispatch should trigger your mind to focus on the task at hand. Learning to do this can be challenging, of course. We all get consumed in our thoughts. Learning to flip a switch to shut out those other concerns will come only with practice. I teach the process this way, for those who are filling a riding position other than that of the driver or officer:

1. Don't move for a second or two. Picture the address in your head. Remind yourself what kind of buildings you have over there. Try and picture the block.
2. *Slowly* get up and *walk* to the apparatus. If you jump up and run to the rig, your heart rate will go up and allow that dump of adrenaline to engage your fight-or-flight response.
3. While walking to the apparatus, begin using the tactical breathing exercise (chapter 2). Inhale for a 4-second count, hold it for 4 seconds, exhale for a 4-second count and hold it for 4 seconds. Get your breathing and heart rate under control. *Don't panic.*
4. Don your personal protective clothing (PPE). This should be a ritual itself. You should do it the same way every single time. I put my feet into my boots, one at a time, and pull up my bunker pants. Then I fasten my pants and pull the "postman" tabs tight to cinch the waist of the pants. I put on my belt, and my Vulcan light hangs on my right side. I don my hood and leave it up. I don my radio strap and snap the sway strap to the ring on the right side of my pants. I don my coat, snap the closures so that my radio microphone is outside my collar, and then close the storm flap. I pull my hood off the top of my head so it is around my neck. I step up into the rig and slip into my SCBA.
5. En route, I make sure that my portable radio is switched to the primary fireground radio. I ensure that the straps of my SCBA are snug and free of twists. I think about my riding assignment, my tool assignment, and what my job will be. Then I just continue with the tactical breathing exercise and try to shut my brain down until I am on scene or hear the size-up of the first arriving company.

If you are the driver/operator, you will have a different process. Rather than just picture the block, you will be thinking about your route to the fire, where the other responding companies are coming from, and where you are likely going to have to position your apparatus. En route to the fire you will be unable to focus on what your actions on arrival will be, because you will be focused on negotiating traffic and being alert to the reports of the first-arriving companies. The officer has a different process and will be considering which SOGs (standard operating guidelines) affect the short-list of tactical decisions, how the time of day and the weather will affect the fire, and what box number to call if additional personnel are needed.

Your specific ritual steps may be different from the brother or sister sitting next to you. You may be the only person on the rig who has embraced being a fire service warrior and the only one with a ritual. Most important, the ritual serves to help you maintain control of your thoughts and emotions (the self-control described in chapter 1), so that you can be ready to perform when you get on scene.

Accountability

Accountability is a word that is thrown around in the fire service a lot. Most of the time when we talk about accountability, we are referring to company officers knowing where the members of their company are, division and group supervisors knowing where their companies are, and incident commanders knowing where the divisions and groups are and what they are doing. It is worth noting that accountability is more than a logistical system for tracking people. It is more than just Passport Name Tags and Command Boards. Accountability is not a series of individual choices but rather an overall definition of personal integrity and character. This book is really a challenge to hold yourself, and your brothers and sisters, accountable. If you are going to embrace that the mission of the fire service is to save lives and protect property regardless of the specific assignments we are given, then you must be prepared to hold yourself accountable for your duty. It is making sure that you are striving for the ready position.

My challenge to you is this: choose to live as a fire service warrior. To make that choice, you need to acknowledge that you are accountable—to your community, your department, and yourself. Firefighting claims the lives of roughly 100 men and women and injures 80,000 a year in the line of duty. Those numbers are staggering. If we are going to make any dent in those numbers, it will because of individual firefighters deciding to embrace their accountability.

Can we reduce our LODDs to zero? Not if we are doing our jobs, because some days, even with all the planning and training in the world, bad things happen. I have heard it said that if you make it through your career without being injured, you probably weren't trying hard enough. I agree with that idea. There is not a professional athlete who has not played with some kind of injury. You are more likely than not going to get hurt on an incident, in training, or in the gym. We must hold ourselves accountable for eliminating the controllable factors in firefighter LODDs. We can eliminate 50% or more of the annual LODDs by making it a zero-tolerance offense not to wear a seat belt or not to use your SCBA; by insisting that every one of our people demonstrate that they are physically capable of handling the incredible physical and physiological stresses we face; and by training our people to the point where they can't get it wrong rather than accepting that they got it right once!

What does zero tolerance mean? It means that we hold ourselves and one another accountable. If my physical conditioning has slacked off, I need to get back into the gym and work harder. If my partner has been cutting corners, it means I must call him or her on it. If you are the company officer and one of your people does not wear a seat belt, you do not let the rig move until they put it on. We have to stop letting things slide. In some departments it may seem like the list of problems is too long to do anything about, but that is not true; you start with yourself, and things will begin to turn around. You have to be honest about your capabilities and your strengths and weaknesses, and strive to eliminate your weaknesses, rather than just try to do what you are good at. You must model the behavior you want others to have, and they will follow you.

Performance is what it all comes down to. Can you perform? If you have committed to the mission of the fire service warrior and prepared yourself for the challenges of the fireground, then you will thrive. If you show up merely to collect a check or for the benefit of status, then you are a mutt—a mere employee who does not deserve to don the gear and get on the rig. The fire service has a reputation that is unprecedented. People trust and respect us. Remember that you did not earn that respect; none of the citizens we serve know if you are the greatest person to ever hold a nozzle or the best outside vent person on the planet. The reputation we have was earned by the men and women who came before us, and they earned it with their lives. It is our duty to show loyalty to those who have come before us, live with virtue, and leave a stronger fire service for those who will come after us. While no one is perfect, we owe it to ourselves to strive for perfection.

One of my partners said at roll call, “Being a fireman is like winning the lottery.” He is 100% right. We have a noble, honorable calling that allows us to do some exciting things while contributing to society. There are plenty of vocations that pay more money, have better benefits, and offer better odds of not being hurt or killed. For the fire service warrior, none of those jobs offer what we really need. Whether you are full-time, on-call, or volunteer, if you live the life of the fire service warrior, you want nothing more than to be there, on the fireground, standing between your neighbors and whatever harm is going to befall them. Some of us find our service dedicated more to providing EMS (emergency medical services), technical rescue, fire prevention and education, or one of the other myriad of duties the fire service has taken on. Remember that the mission is to save lives and protect property. Regardless of the types of incidents you are called to, remember the mission, and remember that there is no place more difficult and dangerous to answer that call than on the fireground.

If you have found this calling, then you have it in you to be a fire service warrior. Make the turn, commit to this life, and do what it takes to excel.

Notes

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2 Merriam-Webster.com, http://www.merriam-webster.com/dictionary/Warrior, accessed March 3, 2009,

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4 Oxford Dictionaries, http://oxforddictionaries.com/view/entry/m_en_us1305147#m_en_us1305147, accessed December 15, 2010

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12 Stone, *Bushidō*, 69.

13 Paul Cartledge, *The Spartans* (Vintage Books, 1994).

14 Cartledge, *The Spartans*, 24.

15 Cartledge, *The Spartans*, 32.

16 *Last Stand of the 300* (DVD), Limulus Productions, History Channel, 2007.

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24 US Navy. "MA2 Michael A. Monsoor, USN," http://www.navy.mil/moh/monsoor/SOA.html.

25 *Warfighting* (MCDP-1) (US Marine Corps: 1997), 7.

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DETROIT FIRE DEPARTMENT
Dexter
Sturtevant
CIGARS
ICE CREAM
CANDY

Appendix

The Fire Service Warrior's Reading List

Throughout my life I have been an avid reader, and I brought that quality with me to my fire service career from the time I started as a paid-on-call member. While not everyone reads for pleasure, maintaining a personal library is a key way professionals all over the world stay informed and improve their understanding of their trade. Even the US Marine Corps publishes the Commandant's Reading List, a list of suggested readings to continue the professional educational of marines from the rank of private through general.[1]

The following is a list of some of the books that I recommend if you would like to learn more about the ideas explored in *The Ready Position*. The endnotes that conclude each chapter also provide a wealth of information regarding articles and Internet resources that will expand your understanding. Be a student of this vocation!

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THE Combat Position

Achieving Firefighter Readiness

CHRISTOPHER BRENNAN

Firefighting is combat and should be viewed as a warrior's calling. Firefighters put themselves in harm's way to protect others, a selflessness rooted in the same noble drive as the military warriors who defend our nation. This book about combat is meant to be a guide for those who seek to follow a warrior's path, the path of the *fire service warrior.*

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- Detailed description of the psychological and physiological preparation that firefighters must undertake
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- Defining the virtues and values needed by the fire service warrior

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